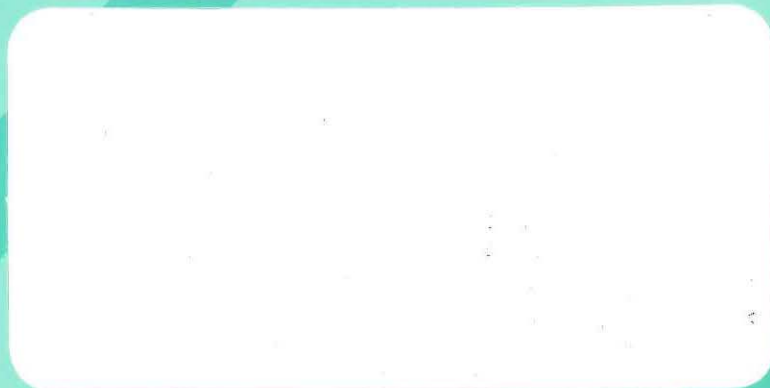




U.S. Environmental Protection Agency
Office of Waste Programs Enforcement
Contract No. 68-W9-0006



TES 9

**Technical Enforcement Support
at Hazardous Waste Sites
Zone III
Regions 5,6, and 7**



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**PRELIMINARY ASSESSMENT/
VISUAL SITE INSPECTION**

**MORGAN MATROC, INC
(FORMERLY VERNITRON PIEZOELECTRIC DIVISION)
BEDFORD, OHIO
OHD 052 324 290**

FINAL REPORT

Prepared for

**U.S. ENVIRONMENTAL PROTECTION AGENCY
Office of Waste Programs Enforcement
Washington, DC 20460**

Work Assignment No.	:	C05087
EPA Region	:	5
Site No.	:	OHD 052 324 290
Date Prepared	:	February 11, 1992
Contract No.	:	68-W9-0006
PRC No.	:	009-C05087OH59
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- A EPA PRELIMINARY ASSESSMENT FORM 2070-12
- B VISUAL SITE INSPECTION SUMMARY AND PHOTOGRAPHS
- C VISUAL SITE INSPECTION FIELD NOTES

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PRC Environmental Management, Inc. (PRC), performed a preliminary assessment and visual site inspection (PA/VSI) to identify and assess the existence and likelihood of releases from solid waste management units (SWMUs) and other areas of concern (AOCs) at the Morgan Matroc, Inc. (Morgan Matroc) facility, formerly the Vernitron Piezoelectric Division (Vernitron), facility in Bedford, Ohio. This report summarizes the results of the PA/VSI and evaluates the potential for releases of hazardous wastes or hazardous constituents from SWMUs and AOCs identified. In addition, a completed U.S. Environmental Protection Agency (EPA) Preliminary Assessment Form (EPA Form 2070-12) is included in Attachment A to assist in prioritization of Resource Conservation and Recovery Act (RCRA) facilities for corrective action.

The facility covers an area of 6 acres and is located in a light industrial and residential area of Bedford, Ohio. It was operated by Vernitron, a division of Vernitron Corporation, Lake Success, New York, between 1938 and 1989. Vernitron designed and manufactured piezoelectric ceramics for commercial, industrial, and military applications. On July 27, 1989, the facility was sold to Morgan Matroc, a wholly owned subsidiary of the Morgan Crucible Company. Morgan Matroc has continued the same process of designing and manufacturing piezoelectric ceramics.

The PA/VSI identified the following 11 SWMUs at the facility:

Solid Waste Management Units

1. Drum Storage Area 1-Dock Area (Inside Storage Area)
2. Drum Storage Area 2
3. Satellite Storage Area
4. Drum Storage Area 3
5. Drum Storage Area 4
6. Outside Storage Area
7. Dust Collectors
8. Powder Preparation Area Sumps
9. Machining Area Sumps
10. Spray Dryer Wet Scrubber
11. Environmental Wet Scrubber

Volatile organics have been detected in upper-aquifer monitoring wells during investigative sampling conducted in April, June, and July 1989 around SWMU 6. The potential for these contaminants to migrate to lower aquifers also exists. The potential for release to ground

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water from all other SWMUs is low because they are enclosed within buildings with concrete floors.

Releases to surface water were not observed during the VSI nor have any documented releases been identified. The potential for release from the outside storage area (SWMU 6) to nearby creeks that are within a ¾-mile radius exists. However, the drinking water source, Lake Erie, is approximately 15 miles from the facility. Therefore, the potential to release to surface water that is a source of drinking water is low. The potential to release from all other SWMUs is low due to their construction and location.

No air release associated with any of the SWMUs has been documented nor were any air releases identified during the VSI. However, air emissions associated with the manufacturing process were reported by employees in August 1990. Employees were believed to be exposed to polyvinyl alcohol decomposition products, silver fumes, and lead. Air sampling conducted by the Occupational Safety and Health Administration (OSHA) following the employee report indicated contaminant concentrations lower than the OSHA standards. The potential for current release to air is low due to current waste management practices at the facility.

Releases to on-site soil from the outside storage area (SWMU 6) have been documented. Soil samples collected around this SWMU during the partial closure initiated in August 1988 and investigative sampling conducted in April, June, and July 1989 indicate the presence of lead and volatile organics. An amended closure report prepared by Toxcon Engineering Company, Inc. in November 1989, reported that all contaminated asphalt at the outside storage area had been brought to clean closure. In addition to the asphalt, approximately 100 to 150 cubic yards of contaminated soil was also excavated from the site. Ohio Environmental Protection Agency (OEPA) approved the excavation and disposal of the contaminated material on June 6, 1991. Activities regarding groundwater remediation at this site are currently awaiting OEPA approval. The potential for release from all the other SWMUs to on-site soil is low because they are located within a building and have a concrete floor.

The facility is located in a light industrial and residential area with several homes within ¼-mile north of the facility and a few homes south, east, and west of the facility. The nearest surface-water intake, Lake Erie, is about 15 miles north of the facility. There are few wells within a 2-mile radius of the facility. At least one well is used for community water supply.

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There are no sensitive environments such as public parks, critical wildlife habitats, or wetlands within 2 miles of the facility.

On-site access is limited by a fence and entry is controlled by a 24-hour card entry and exit security system.

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1.0 INTRODUCTION

PRC Environmental Management, Inc. (PRC), received Work Assignment No. C05087 from the U.S. Environmental Protection Agency (EPA) under Contract No. 68-W9-0006 (TES 9) to conduct preliminary assessments (PAs) and visual site inspections (VSIs) of hazardous waste treatment and storage facilities in Region 5.

As part of the EPA Region 5 Environmental Priorities Initiative, the Resource Conservation and Recovery Act (RCRA) and Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) programs are working together to identify and address RCRA facilities that have a high priority for corrective action using applicable RCRA and CERCLA authorities. The PA/VSI is the first step in the process of prioritizing facilities for corrective action. Through the PA/VSI process, enough information is obtained to characterize a facility's actual or potential release(s) to the environment from solid waste management units (SWMUs) and areas of concern (AOCs).

A SWMU is defined as any discernible unit at a RCRA facility in which solid wastes have been placed and from which hazardous constituents might migrate, regardless of whether the unit was intended to manage solid or hazardous waste.

The SWMU definition includes the following:

- RCRA-regulated units, such as container storage areas, tanks, surface impoundments, waste piles, land treatment units, landfills, incinerators, and underground injection wells.
- Closed and abandoned units.
- Recycling units, wastewater treatment units, and other units that EPA has generally exempted from standards applicable to hazardous waste management units.
- Areas contaminated by routine and systematic releases of wastes or hazardous constituents. Such areas might include a wood preservative drippage area, a loading-unloading area, or an area where solvent used to wash large parts has continually dripped onto soils.

An AOC is defined as any area where a release to the environment of hazardous waste or constituents has occurred or is suspected to have occurred on a nonroutine and nonsystematic

basis. This includes any area where such a release in the future is judged to be a strong possibility.

The purpose of the PA is as follows:

- Identify SWMUs and AOCs at the facility.
- Obtain information on the operational history of the facility.
- Obtain information on releases from any units at the facility.
- Identify data gaps and other informational needs to be filled during the VSI.

The PA generally includes review of all relevant documents and files located at state offices and at the EPA Region 5 office in Chicago.

The purpose of the VSI is as follows:

- Identify SWMUs and AOCs not discovered during the PA.
- Identify releases not discovered during the PA.
- Provide a specific description of the environmental setting.
- Provide information on release pathways and the potential for releases to each medium.
- Confirm information obtained during the PA regarding operations, SWMUs, AOCs, and releases.

The VSI includes interviewing appropriate facility staff, inspecting the entire facility to identify all SWMUs and AOCs, photographing all SWMUs, identifying evidence of releases, initially identifying potential sampling locations, and obtaining all information necessary to complete the PA/VSI report.

This report documents the results of a PA/VSI of the Morgan Matroc, Inc. facility (Morgan Matroc), formerly the Vernitron Piezoelectric Division (Vernitron) facility, in Bedford, Ohio. The PA/VSI focused on past operations by Vernitron and on current operations by Morgan Matroc at this location. The PA was completed on April 10, 1991. PRC gathered and reviewed

information from the Ohio Environmental Protection Agency, Northeast District Office (Ohio EPA), Twinsburg, Ohio, and from EPA Region 5 RCRA files. The VSI was conducted on June 26, 1991. It included interviews with a former Vernitron employee and with Morgan Matroc's representatives, and a walk-through inspection of the facility. Eleven SWMUs were identified at the facility.

PRC completed EPA Form 2070-12 using information gathered during the PA/VSI. This form is included in Attachment A. The VSI is summarized and inspection photographs are included in Attachment B. Field notes from the VSI are included in Attachment C.

2.0 FACILITY DESCRIPTION

This section describes the facility's location, past and present operations (including waste management practices), waste generating processes, release history, regulatory history, environmental setting, and receptors.

2.1 FACILITY LOCATION

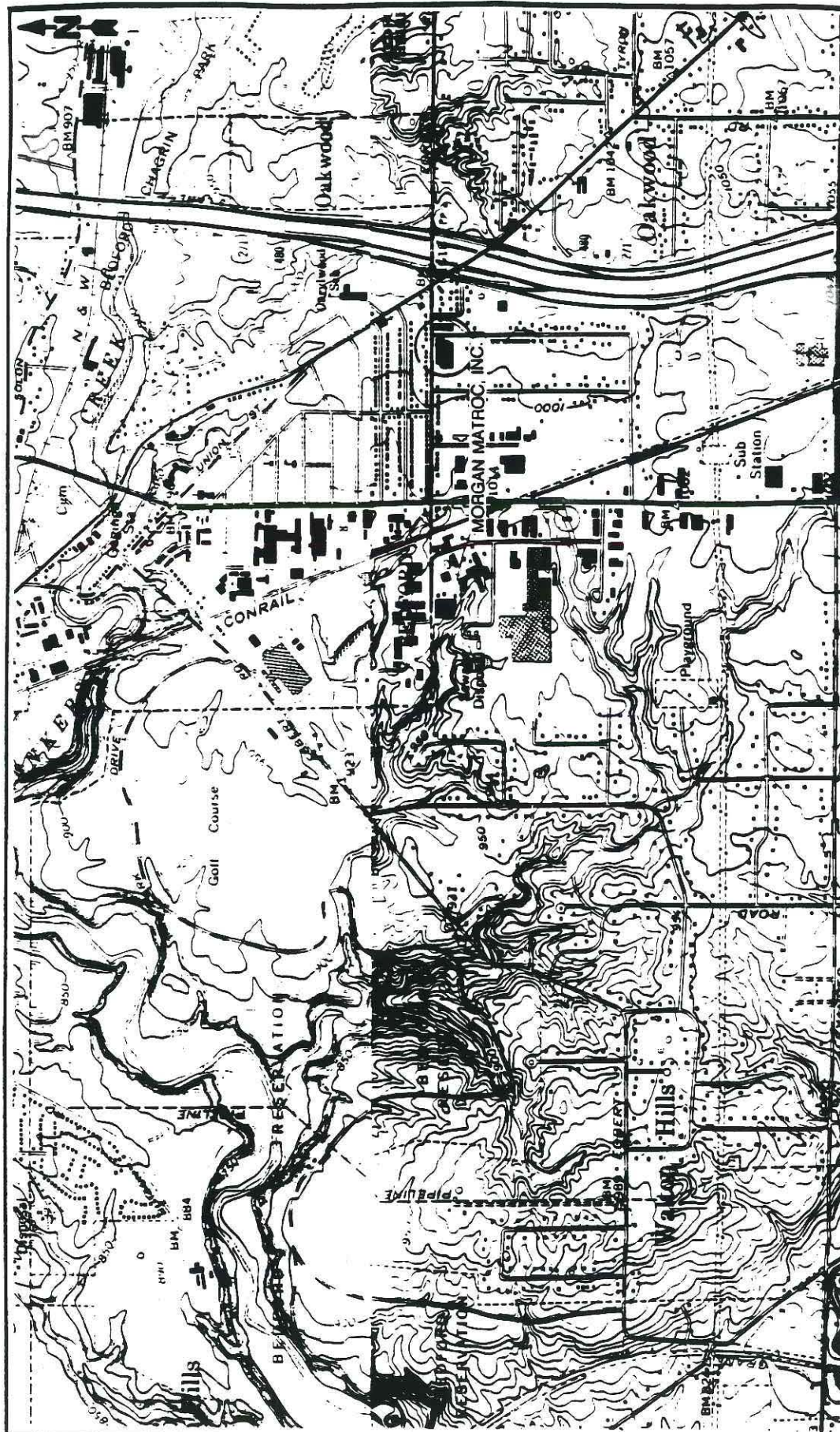
The facility is located at 232 Forbes Road, Bedford, Ohio (latitude 41°22'00"; longitude 81°31'15") (see Figure 1). The facility covers an area of 6 acres.

The facility is located in a light industrial and residential area. The facility is bounded by Forbes Road on the north, Free Road on the east, North Lane on the south, and Wright Street on the west. The commercial areas are east and west of the facility. There are several residential homes within ¼-mile north of the facility, and a few homes south, east, and west of the facility (PRC, 1991).

2.2 FACILITY OPERATIONS

Vernitron is a division of Vernitron Corporation, Lake Success, New York. From 1938 to 1989 Vernitron designed and manufactured piezoelectric ceramics for commercial, industrial, and military applications at their facility on Forbes Road in Bedford, Ohio. Piezoelectric ceramics are used in mechanical to electrical and electrical to mechanical transducers and are sold to manufacturers of electrical and electronic sensors and equipment. The facility houses division offices, research and development laboratories, applications and materials engineering department, and the manufacturing and quality assurance departments (PRC, 1991). Vernitron sold the property to Morgan Matroc on July 27, 1989. Morgan Matroc uses the same manufacturing process formerly used by Vernitron.

The primary activity at Vernitron was the manufacture of lead zirconate titanate (PZT) ceramics. Raw materials including lead oxide, zirconium oxide, and titanium dioxide were mixed with small percentages of "modifiers" to modify the structure of the ceramic. This mixture was sent to the blungers where it was mixed with water and allowed to agglomerate. The cake was then transferred to a rotary kiln to remove water and solids. The product that resulted from this process was PZT. The PZT was then ground in water by a particle size grinder. Then a binder,



SCALE: 1" = 2400'



MORGAN MATROC, INC.
BEDFORD, OHIO

FIGURE 1
FACILITY LOCATION

SOURCE: USGS.

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polyvinyl alcohol (PVA), was added to the PZT. The PZT was then hot-air blown to remove the water. Next, the product was proof-tested for shrinkage and piezoelectric characteristics. The PZT ceramic then went through a three-stage high-temperature firing process in order to remove the PVA. The firing process completely burned the PVA with excess oxygen. The next process, polarizing, involved installing silver electrodes on PZT and immersing the PZT into a hot mineral oil. Perchloroethylene was used to remove the mineral oil. The product was then inspected and shipped to customers (PRC, 1991).

Both Vernitron and Morgan Matroc have generated hazardous and nonhazardous wastes from their ceramic manufacturing processes. Figure 2 presents the facility's layout including locations of SWMUs.

Table 1 lists the SWMUs identified during the PA/VSI.

2.3 WASTE GENERATING PROCESSES

Vernitron generated several characteristically hazardous and nonhazardous wastes from its ceramic manufacturing processes. These wastes included toluene, ethanol, freon, perchloroethylene, spent nickel-plating solution, chromic acid, waste oil, ceramic pieces and powder waste containing lead. Vernitron used the inside drum storage area (SWMU 1) and the outside drum storage area (SWMU 6) to accumulate its wastes before shipment offsite for disposal or reclamation. Vernitron sold the property to Morgan Matroc, a wholly-owned subsidiary of the Morgan Crucible Company, on July 27, 1989. Both companies use the same type of manufacturing process and generate the same type of wastes. Morgan Matroc continues to use SWMU 1 to store perchloroethylene (F001), freon (F001, F002), ethanol (D001), and waste oil (D001). SWMU 6 is undergoing final closure.

Morgan Matroc generates wet and dry ceramic powders from the powder preparation and machining area. Ceramic powder in both areas are accumulated in sumps (SWMUs 8 and 9), dewatered, and sent offsite for lead reclamation. Dust from both areas passes through the dust collectors (SWMU 7). The dust fines either go to the spray dryer wet scrubber (SWMU 10) or the environmental wet scrubber (SWMU 11). Sludges generated at these two SWMUs are first dewatered and then sent offsite for lead reclamation.

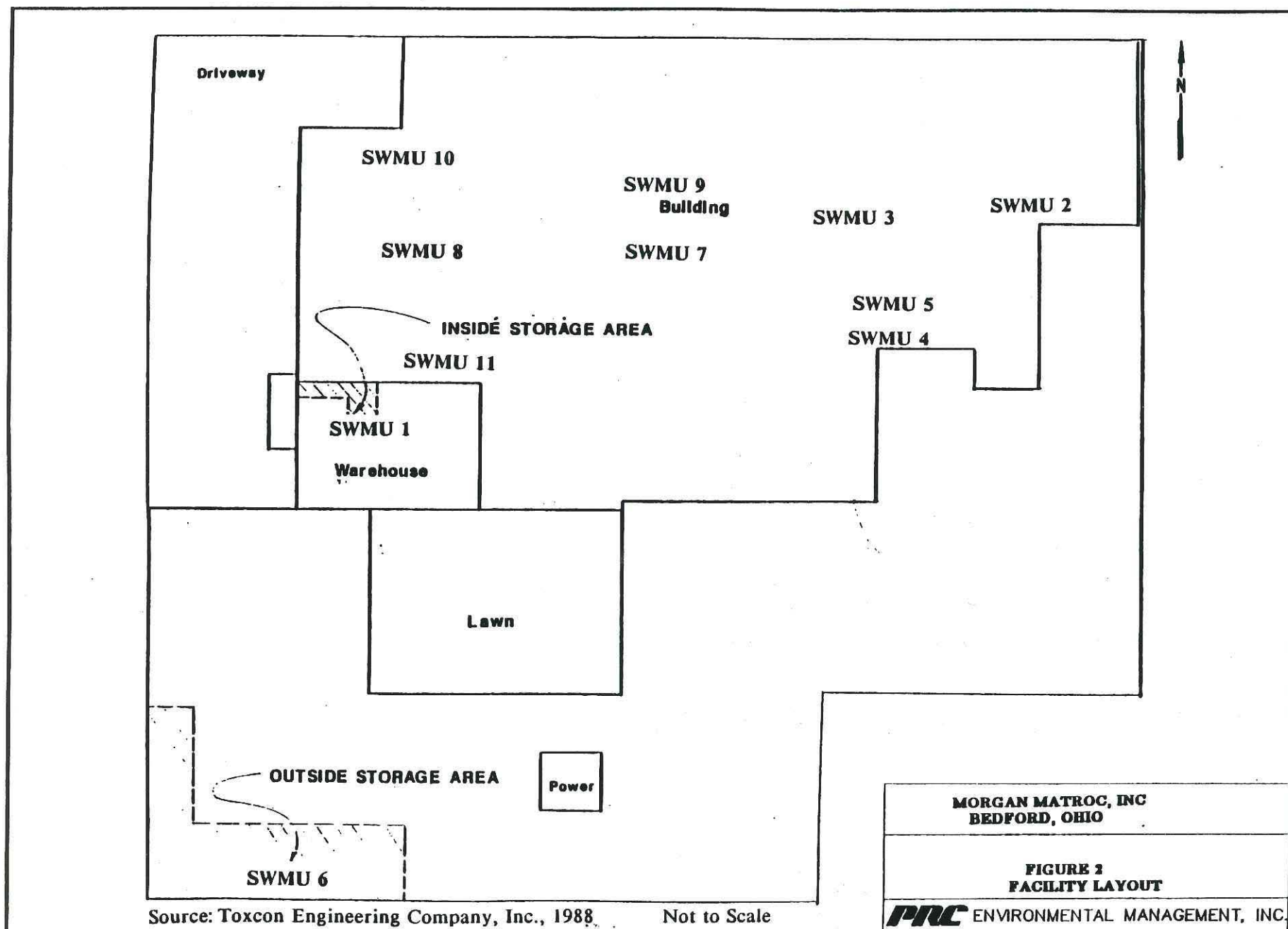


Table 1**Solid Waste Management Units (SWMUs)**

SWMU Number	SWMU Name	RCRA Hazardous Waste Management Unit*	Status
1	Drum Storage Area 1-Dock Area (Inside Storage Area)	Yes	Partially closed, currently active
2	Drum Storage Area 2	No	Active
3	Satellite Storage Area	No	Active
4	Drum Storage Area 3	No	Active
5	Drum Storage Area 4	No	Active
6	Outside Storage Area	Yes	Inactive, undergoing final closure
7	Dust Collectors	No	Active
8	Powder Preparation Area Sumps	No	Active
9	Machining Area Sumps	No	Active
10	Spray Dryer Wet Scrubber	No	Active
11	Environmental Wet Scrubber	No	Active

* A RCRA hazardous waste management unit is one that currently requires or formerly required a RCRA Part A or Part B permit application.

Morgan Matroc generates several wastes from its polarizing process. This process involves installing silver electrodes on PZT ceramic and immersing it in hot mineral oil. Perchloroethylene waste (F001) used for cleaning mineral oil from the silver electrodes is stored in drum storage area 1 (SWMU 1). Silver paper wipes (D011) are also generated and stored in drum storage area 4 (SWMU 5). Toluene (F005) is generated from the silver paste thinning operation. Morgan Matroc also generates spent nickel-plating solution (F006) from the nickel-plating area. This waste is first accumulated in the satellite accumulation area (SWMU 3) and then stored in drum storage area 2 (SWMU 2). Morgan Matroc also generates ethanol (D001), freon (F001, F002), and chromic acid solution (D002, D007) from parts cleaning processes. In addition, Morgan Matroc generates waste oil (D001) from equipment maintenance operations and stores it in SWMU 1. The facility has two unpermitted wastewater discharge points. It plans to start operating its own wastewater treatment plant with a permit in the next quarter. Table 2 summarizes solid wastes managed at the facility during past or current operations.

2.4 RELEASE HISTORY

In August 1990, employees at Morgan Matroc complained of an odor within the building. Employees were believed to have been exposed to PVA decomposition products, silver fumes, and lead. In addition, employees complained of inadequate ventilation in the nickel-plating operation area (U.S. Department of Labor, 1990). As a result, the Occupational Safety and Health Administration (OSHA), Region 5, conducted air sampling in the building on January 30, 1991. Air samples were collected from the furnace area and were tested for the presence of chromium, copper, iron oxide, beryllium, cadmium, cobalt, manganese, molybdenum, nickel, lead, antimony, vanadium, zinc oxide, and cobalt. All of these contaminants were either not detected or detected at levels below time-weighted-average OSHA standards (U.S. Department of Labor, 1991).

In August 1988, soil and asphalt samples were taken in the SWMU 6 area. These samples contained elevated levels of lead and volatile organics. In April, June, and July 1989 investigative soil and ground-water samples were collected and analyzed for lead and volatile organics. The analytical results indicated ground-water total volatile organic concentrations of 0.06 milligrams per liter (mg/L) in an upgradient monitoring well and 5.5 mg/L and 13.2 mg/L in two downgradient monitoring wells. Lead was detected at a concentration of 0.018 mg/L (less than the primary drinking water standard of 0.05 mg/L). Soil samples contained elevated concentrations of volatile organics and lead. The most frequently detected volatile organics were trans-1, 2-dichloroethene (up to 21,000 mg/kg), trichloroethene (up to 1,600 mg/kg), and tetrachlorethene

Table 2
Solid Wastes

	Waste/EPA Waste Code	Source	Primary Management Unit*
1.	Silver wipes/D011	Silver electrode cleaning	5
2.	Perchloroethylene/F001	Degreasing of parts	1, 6
3.	Ethanol/D001	Cleaning of parts	1
4.	Spent electroless nickel plating solution/F006	Nickel plating	2, 3
5.	Freon/F001, F002	Cleaning of parts	1
6.	Toluene/F005	Silver paste thinner	1
7.	Spent chromic acid solution/D002, D007	Cleaning brass	2, 3
8.	Waste oil/D001	Equipment maintenance	1
9.	Ceramic PZT powder waste/D008	Ceramic manufacture	1, 4
10.	Dust fines/D008	Powder preparation and machining	7, 8, 9, 10, and 11

* Primary management unit refers to the SWMU that currently manages or formerly managed the waste.

(up to 13,000 mg/kg). Lead concentrations were considered elevated if the detected levels exceeded 257 mg/kg for samples collected near the surface and 27 mg/kg for samples deeper than one foot below grade (Toxcon, 1989). The total area of soil and asphalt containing elevated levels of lead to be excavated was approximately 7,200 square feet.

2.5 REGULATORY HISTORY

Vernitron submitted a RCRA Part A permit application in 1980. According to the application, the plant generated characteristic and listed wastes. It also generated nonregulated solids that were reclaimed or recycled. The plant was categorized as a generator and storage facility.

On May 20, 1986, Ohio EPA conducted an inspection of the facility. The purpose of the inspection was to determine the facility's compliance status with applicable federal and state rules pertaining to the generation and temporary onsite handling of regulated hazardous waste. The inspection uncovered several violations; for example, Vernitron failed to properly analyze and characterize 10 drums in the outside storage area (SWMU 6) in violation of 40 CFR 261.11 and OAC 3745-52-11. Some of these drums were in very poor condition and several of them did not have lids, in violation of 40 CFR 265.171, 40 CFR 265.173, OAC 3745-66-71, and OAC 3745-66-73. Vernitron also failed to conduct and document weekly inspections of drums containing hazardous wastes, in violation of 40 CFR 265.174 and OAC 3745-66-74. A drum of waste methyl alcohol (an ignitable waste) was noted to be stored less than 50 feet from the facility's south property line, in violation of 40 CFR 265.176 and OAC 3745-66-76. A drum of waste toluene was noted to have been stored in drum storage area 1 (SWMU 1) in excess of 90 days, in violation of Ohio Revised Code Section 3734.02(E). Vernitron had shipped silver-reclaim wastes on March 11, 1986, without a uniform hazardous waste manifest, in violation of 40 CFR 262.20 and OAC 3745-52-20. Sections 40 CFR 266.70(b) and OAC 3745-58-60 (B) of the precious-metal reclaim rules require that generators of waste for precious-metal reclaim comply with the manifesting requirements, effective January 30, 1986 (Ohio EPA, 1986).

Vernitron submitted a closure plan, dated May 20, 1985, for areas previously used for greater than 90-day storage. Ohio EPA determined the closure plan to be deficient and required the facility to submit a revised closure plan (Ohio EPA, 1986). Vernitron submitted a revised closure plan dated December 10, 1986, for the closure of SWMUs 1 and 6. Revisions to this closure plan were received by Ohio EPA on March 12, 1987. The closure plan was approved with

conditions by the Ohio EPA (Ohio EPA, 1987). U.S. EPA also approved it with the same conditions stipulated by the Ohio EPA letter of May 7, 1987 (U.S. EPA, 1988). During the week of August 22, 1988, partial closure efforts were implemented at SWMUs 1 and 6. Toxcon Engineering Company Inc., Houston, Texas, was retained by Vernitron to manage the cleanup efforts. While SWMU 1 was brought to clean closure, SWMU 6 required further cleanup efforts (Vernitron, 1988). An extension to complete closure activities by September 8, 1989, was granted by Ohio EPA, due to the need to completely determine the extent of the contamination around SWMU 6 (Ohio EPA, 1989).

Interim status RCRA inspections were conducted at the facility on June 26, 28, and July 5, 1989 by Ohio EPA. Several violations were cited as a result of these inspections. For example, Vernitron shipped silver/perchloroethylene (a land banned waste) to an unpermitted facility (Eastern Smelting and Refining, Lynn, Massachusetts). Another violation noted during these inspections was storing waste for more than 90 days.

Vernitron sold the property to Morgan Matroc, Inc., a wholly owned subsidiary of the Morgan Crucible Company, on July 27, 1989. Pursuant to the Asset Purchase Agreement between Vernitron and Morgan Matroc, Vernitron remained responsible with respect to cleanup and treating environmental conditions addressed in the closure plan (Vernitron, 1989).

Morgan Matroc has air permits from the City of Cleveland. It has been monitoring lead and organics in the process area once a month since March, 1990 as required by OSHA (PRC, 1991). Air monitoring is conducted by Envisage Environmental, Inc., Richfield, Ohio. There are no documented air permit violations. Morgan Matroc has two unpermitted wastewater discharge points to the City of Bedford wastewater treatment plant (PRC, 1991).

2.6 ENVIRONMENTAL SETTING

This section describes the climate, flood plain and surface water, geology and soils, and ground water in the vicinity of the Morgan Matroc facility.

2.6.1 Climate

Average temperatures in the Cleveland area range from a low of 26 degrees Fahrenheit (°F) in January to a high of 72 °F in July. Northern areas nearest Lake Erie are markedly colder

than the rest of the area in summer. Precipitation is well distributed during the year. From late fall through winter, snow squalls are frequent and total snowfall is normally heavy. Of the total annual precipitation, 60 percent usually falls in April to September. Average relative humidity in mid-afternoon is about 60 percent; humidity is greater at night; and the average at dawn is about 80 percent. The percentage of possible sunshine is 70 percent in summer and 30 percent in winter. The prevailing wind direction is from the south. Average wind speed is highest, 13 miles per hour, in January. Average annual precipitation is 35.4 inches, and the intensity of a 1-year, 24-hour rainfall is 2 inches (National Oceanic and Atmospheric Administration, 1990).

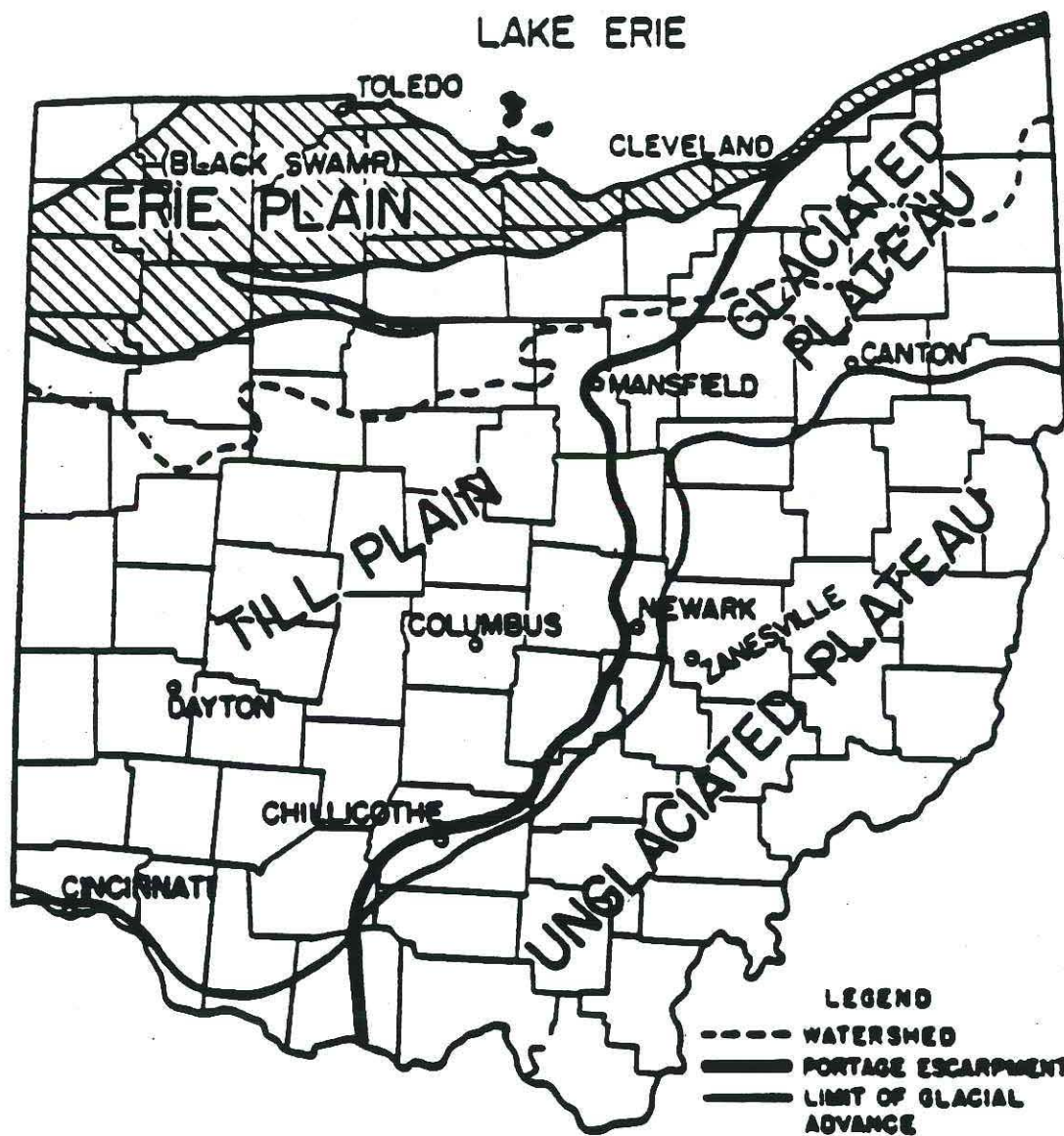
2.6.2 Flood Plain and Surface Water

The Vernitron plant is located approximately $\frac{3}{4}$ -mile south of Tinker's Creek, which flows into the Cuyahoga River. One-half mile east of the plant flows an unnamed intermittent stream, and $\frac{1}{2}$ -mile west of the plant flows a similar stream. Both streams flow into Tinker's Creek. The facility is not located in a 100-year flood-prone area (U.S. Geological Survey, 1974).

2.6.3 Geology and Soils

Regional data indicate that the exposed rocks of the area are of sedimentary origin and range in age from late Devonian to Pleistocene. They fall into two general classes: indurated stratified rocks of late Devonian and early Carboniferous age, and unconsolidated superficial deposits of Pleistocene age. The superficial deposits consist mainly of Pleistocene glacial and lacustrine deposits and recent alluvium. These Pleistocene deposits form a blanket over the bedrock ranging in thickness from 0 to 440 feet. The indurated rocks crop out in the beds and gorges of streams, quarries, and other excavations. The total thickness of Paleozoic strata exposed in this area is about 750 feet. These beds consist of shale, sandstone, and conglomerate of late Devonian, early Mississippian, and early Pennsylvanian age (Cushing, Leverett, 1931).

As seen in Figures 3 and 4, the rock sections in the Cleveland area, separated by varying thicknesses of weak shale, mark the surface of the Appalachian Plateau and the two lesser platforms on the slope of the Portage escarpment. The uppermost of the rocks in this formation is the Sharon conglomerate, of lower Pennsylvanian age. It is the youngest exposed Paleozoic rock in this area, and is the capstone formation of the plateau across northeastern Ohio. Below the Sharon conglomerate, other formations include: the Orangeville and Meadville shales from the Mississippian age; the Cleveland and Bedford shales, classified by some as upper Devonian and by



SCALE NOT AVAILABLE

SOURCE: WILLIAMS, 1940

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FIGURE 3
PHYSIOGRAPHIC BOUNDARY LINES IN OHIO

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SOURCE: WILLIAMS, 1940

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FIGURE 4
GEOLOGICAL FEATURES
OF THE CLEVELAND AREA

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others as lower Mississippian age, and the Chagrin shale of late upper Devonian age. Figure 5 shows these rocks as they appear in the area below Cleveland (Cushing, Leverett, 1931). Exposed rocks are underlain by large thicknesses of Devonian, Silurian, and Ordovician formations, and presumably of Cambrian also, resting on a floor of Pre-Cambrian crystalline rocks.

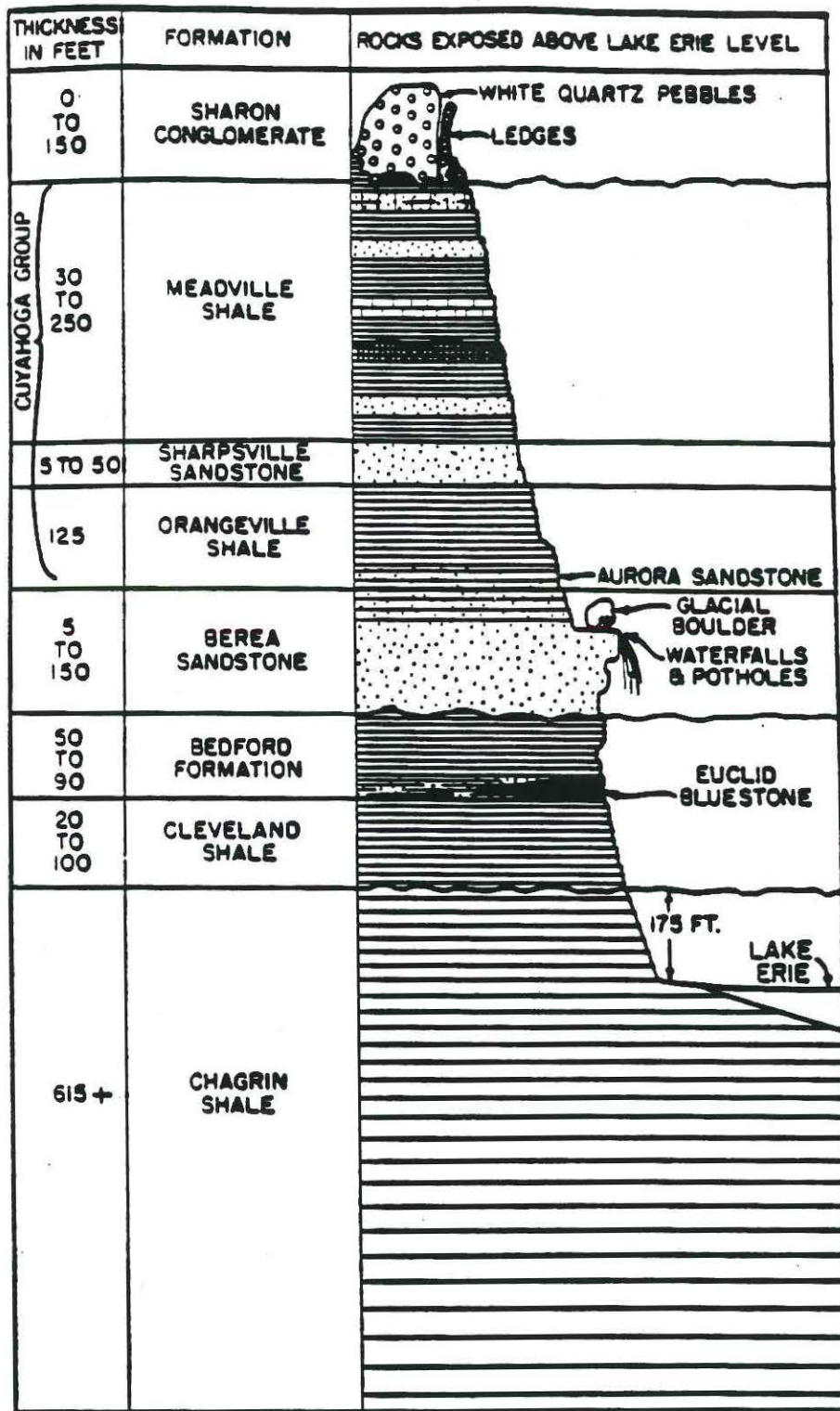
The soils of the area around the plant are of the Mahoning-Urban land complex. These soils consist of deep, somewhat poorly drained Mahoning soil and Urban land in broad undulating areas on till plains and on the higher parts of the lake plains. These soils consist of 55 percent Mahoning silt loam and 30 percent Urban land. Slopes typically range from 0 to 6 percent. Typically, the Mahoning soil has a surface layer of dark grayish brown silt loam about 7 inches thick. The subsoil is about 32 inches thick. It is yellowish-brown, dark yellowish-brown, and olive-brown silty-clay loam that is mottled and firm. Olive-brown, mottled, firm, silty-clay loam and clay loam below the subsoil reaches to depths of approximately 60 inches.

As part of the facility's closure plan, hydrogeological characteristics of the facility's property were assessed. A cross-section of the lithology beneath the facility is depicted in Figure 6. The Urban land soils are not readily discernible because of manmade obstacles such as streets, parking lots, buildings, and other structures that obscure or alter the soils so that identification is not feasible.

2.6.4 Ground Water

A ground-water investigation was implemented when volatile organic contaminants were detected in soil samples collected within the first ground-water aquifer as part of the facility's efforts to close SWMU 6 and partially close SWMU 1. Three monitoring wells were installed for this effort. The hydrological characteristics, as shown in Figure 6, at this site are partially governed by the uppermost 10 to 15 feet of a clay-rich glacial till, 96 feet of the Orangeville shale member of the Cuyahoga Formation, and the Berea sandstone. Although the 96-foot thick, confining shale represents a physical barrier separating the Berea aquifer from the overlying surface or shallow subsurface water, the specific hydrogeologic characteristics of this unit at the site have not been documented (Weber, Winslow, and White, 1953).

Ground-water studies at the facility indicate that the ground-water flow at this site is from north-northeast to south-southwest. The depth to groundwater was measured to be between 3.75 and 4.83 feet from the ground surface (Toxcon, 1989). The direction of ground-water flow

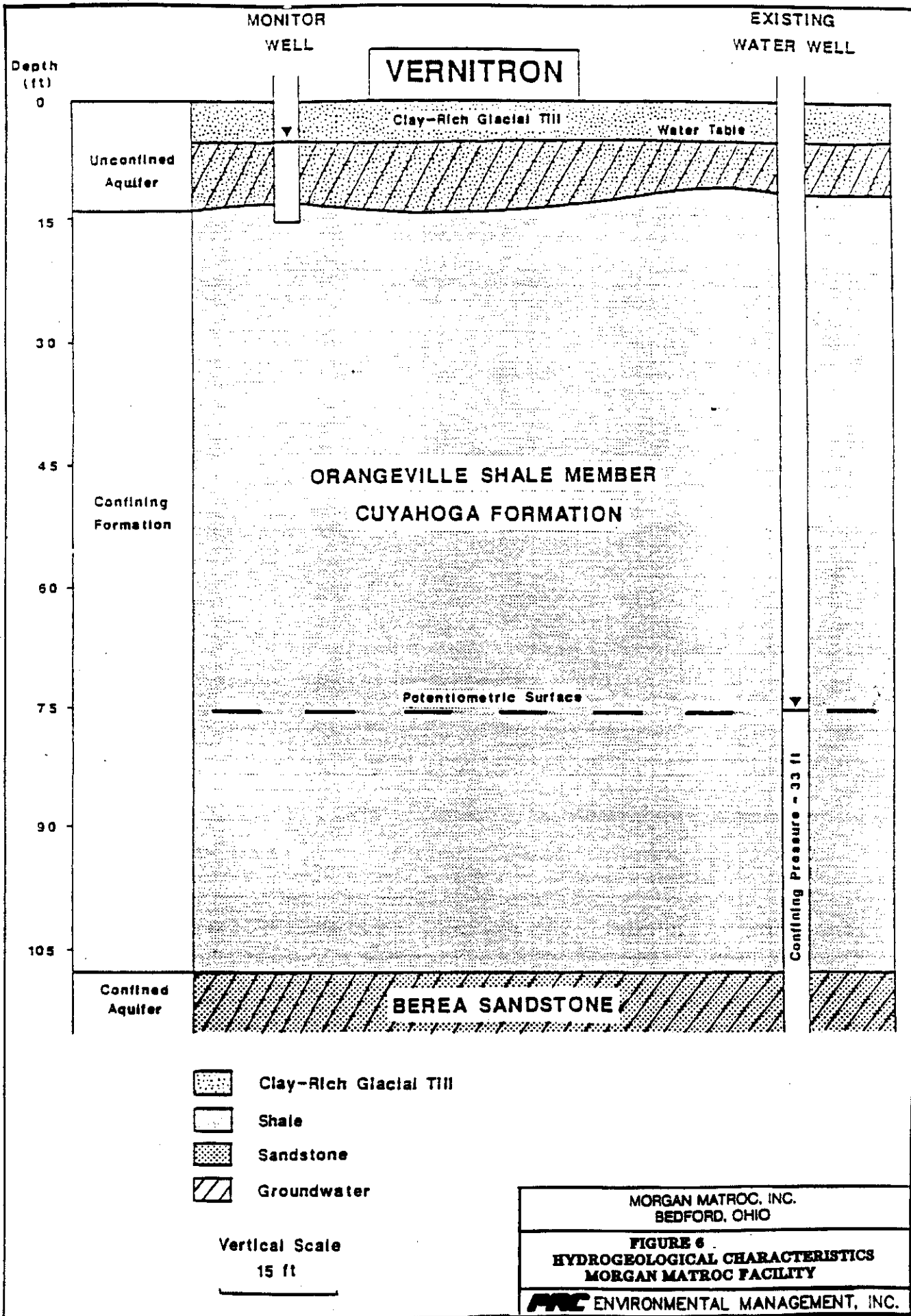


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BEDFORD, OHIO

FIGURE 5
REPRESENTATIVE GEOLOGIC CROSS-SECTION
OF THE CLEVELAND AREA

EMC ENVIRONMENTAL MANAGEMENT, INC.

SOURCE: WILLIAMS, 1940



in the Berea sandstone is unknown.

Two water wells located within 1/20-mile from the site encounter the Berea sandstone at 108 feet to 112 feet (Vernitron, 1989b). The exact location, use, and condition of the wells is unknown. The Berea sandstone comprises the aquifer which sources local drinking water. The Berea is a confined aquifer as interpreted by the Ohio Department of Natural Resources, Ground-water Resources Division, and as demonstrated by a potentiometric surface at 75 feet as measured in the existing water wells (Toxcon, 1989).

2.7 RECEPTORS

The facility is located near the intersection of the towns of Bedford, Oakton, and Walton Hills, each a suburb of Cleveland, Ohio. The population of the city of Bedford is approximately 14,500. The facility is located in a light industrial and residential area. Residential homes are located within 1/4-mile north of the facility as well as south, east, and west. The prevailing wind direction is from the south. All sources of air emissions are enclosed in a building that is regularly monitored for lead and volatile organics. Under these conditions, the risk is low for human exposure to air contaminants coming from the facility.

Intermittent streams within 1/4 mile to the east and west of the facility flow northwest into Tinker's Creek. Tinker's Creek is approximately 3/4-mile north of the facility. Tinker's Creek flows northwest into the Cuyahoga River, which in turn flows into Lake Erie. The nearest downstream water intake is Lake Erie, located 15 miles from the facility.

Although the city of Cleveland obtains its water through the municipal water supply from Lake Erie, some communities outside the city rely on ground water. There are five wells within a two mile radius of the facility. At least two wells are located 1/4-mile west of the facility on Division Street. One of the wells serves a factory; the second well is part of the Oakwood community water supply. At least three additional wells are located 1/4-mile east of the facility, on Forbes Road, Broadway, and Grove Streets, respectively (Bennick, 1991). The depth to ground water at this facility is between 3.75 and 4.83 feet from the ground surface. The ground-water flow at this site was determined to be from north-northeast to south-southwest (Toxcon, 1989). Ground-water samples taken at the site were found to contain elevated levels of volatile organics.

There are no sensitive environments such as public parks, critical wildlife habitats, or wetlands within a 2-mile radius of the facility (USGS, 1979a, 1979b).

On-site access is limited by a fence and entry is controlled by a 24-hour card entry and exit security system. Therefore, except for employees, the risk for human exposure to soil contamination is low.

3.0 SOLID WASTE MANAGEMENT UNITS

This section describes the 11 SWMUs identified during the PA/VSI. The following information is presented for each SWMU: description of the unit, dates of operation, wastes managed, release controls, history of release, and PRC observations.

SWMU 1

Drum Storage Area 1-Dock Area (Inside Storage Area)

- Unit Description:** This unit is located inside the facility's warehouse adjacent to the powder preparation area. The area has a concrete floor. The location of this unit is shown in Figure 2; the unit is depicted in photographs 1 and 2.
- Date of Startup:** Vernitron used this unit from the 1970s to August 1988 when it was partially closed. Vernitron continued to use it after the partial closure was completed in October 1988.
- Date of Closure:** A partial closure was initiated at this unit in August 1988 after Ohio EPA determined that Vernitron stored toluene at this unit for more than 90 days. The unit is currently being used by Morgan Matroc for storage of drums.
- Wastes Managed:** The area was used for packaging and storage of hazardous solid wastes. The solid hazardous waste stored at this area was packed in fiber drums and disposed of offsite. This area was also used for the storage of perchloroethylene, toluene, and mineral oil contaminated with perchloroethylene. In addition, raw materials (lead) and in-process materials containing lead were stored here (Vernitron, 1986). According to a Morgan Matroc weekly inspection checklist for the week of June 17, 1991, perchloroethylene, freon (F001, F002), ethanol (ignitable, D001), and waste oil (ignitable, D001) were stored at this area.
- Release Controls:** The unit has a concrete floor and is equipped with two floor drains and granular absorbent material. The floor drains are connected to the sanitary sewer system.
- History of Release:** Partial closure verification samples taken from this area in August 1988, were analyzed for volatiles, semivolatiles, and EP-toxicity metals. No RCRA-regulated solvents in concentrations greater than 1 mg/L were detected; no metals greater than allowable maximum concentrations of EP toxicity were detected (Vernitron, 1988).
- Observations:** During the VSI, 55-gallon steel drums containing perchloroethylene and ethanol were staged on the concrete floor. The drums appeared in good condition. Lead-containing solids in 30-gallon metal drums were staged on pallets. No cracks or expansion joints were observed in the floor where drums were stored. No visible stains or other signs of release were observed during the VSI.

SWMU 2**Drum Storage Area 2**

Unit Description: This unit is an inside drum storage area located at the southeast end of the building. It consists of a concrete floor. The location of this area is shown in Figure 2. Photograph 3 depicts this SWMU.

Date of Startup: 1989

Date of Closure: This SWMU is currently operational.

Wastes Managed: Spent electroless nickel-plating solution (F006) and spent chromic acid solution (D002, D007) are stored at this unit before shipment to an off-site location. The spent nickel solution is sent to Chem Met Services, Inc., Wyandotte, Michigan, for incineration. The brass solution is sent to Frontier Chemical Waste Processing Inc., Niagara Falls, New York, for incineration.

Release Controls: The area is surrounded by clay material absorbents. There are no floor drains in this unit.

History of Release: No releases have been documented from this SWMU.

Observations: During the VSI no releases were observed from this area. The area appeared to be in satisfactory condition. Nine drums containing the nickel solution were staged on pallets on a concrete floor. No cracks were observed in the concrete. All of the drums were in good condition.

SWMU 3**Satellite Storage Area**

Unit Description: This SWMU is located in a hallway between the nickel-plating area and the engineering science room. This area has a secondary containment system. The location of this SWMU is shown in Figure 2. Photograph 4 depicts this SWMU and the secondary containment system.

Date of Startup: 1989

Date of Closure: This SWMU is currently operational.

Wastes Managed: Spent electroless nickel-plating solution (F006), spent chromic acid solution, and a corrosive liquid (D002, D007) known as Isoprep 201, are accumulated at this location before being stored at SWMU 2.

Release Controls: This unit is equipped with a secondary containment system that collects any spills from drums staged in this area. The secondary containment consists of grating over a concrete sump. Any leaks or spills from the drums would be contained in the sump. The area also consists of a concrete floor. No cracks were observed in the concrete.

History of Release: No releases have been documented from this SWMU.

Observations: During the VSI, two drums containing spent electroless nickel-plating solution and cleaning brass solution, respectively, were accumulated at this area. The secondary containment system appeared to be in sound condition. A third empty drum was located outside the secondary containment system on the concrete floor. No stains or signs of releases were observed.

SWMU 4 Drum Storage Area 3

Unit Description: This unit is an inside drum storage area located in the southeast side of the building. It consists of a concrete floor. The location of this area is shown in Figure 2.

Date of Startup: 1989

Date of Closure: This SWMU is currently operational.

Wastes Managed: Non-regulated PZT ceramic powder wastes containing lead (D008) collected from sumps are stored in fiber drums before shipment to Schuylkill Metals Corporation, Baton Rouge, Louisiana for lead reclamation.

Release Controls: This area is equipped with a high efficiency particulate air (HEPA) vacuum. The area has a concrete floor. There are no floor drains in this unit.

History of release: No releases have been documented from this SWMU.

Observations: During the VSI, the drums were sealed and appeared to be in good condition. No cracks were observed in the concrete floor. No releases were observed from this SWMU.

SWMU 5 Drum Storage Area 4

Unit Description: This SWMU is an inside drum storage area located on the southeast side of the building adjacent to SWMU 4 on a concrete floor. The location of this area is shown in Figure 2.

Date of Startup: 1989

Date of Closure: This SWMU is currently operational.

Wastes Managed: PZT ceramic and paper wipes containing silver (D011) are stored in this area in fiber drums. These wastes are then shipped to Materials Processing Corporation, St. Paul, Minnesota, for silver recovery.

Release Controls: This area is equipped with a HEPA vacuum. The area has a concrete floor. There are no floor drains near this unit.

History of release: No releases have been documented from this SWMU.

Observations: During the VSI, all the fiber drums were properly closed and appeared to be in good condition. The concrete floor was in good condition with no cracks. No releases were observed from this unit.

SWMU 6 Outside Storage Area

Unit Description: This unit is located in the southwest corner of the asphalt paved area bounded by a chain-like fence. The location of this area is shown in Figure 2. Photograph 5 depicts this unit.

Date of Startup: 1970s

Date of Closure: Partial closure was initiated at this area in August 1988. Approximately 100 to 150 cubic yards of excavated soil is schedule to be disposed of at an OEPA approved landfill by February 1992. OEPA approved all excavation activities and disposal of the contaminated material on June 9, 1991 (Kupcak, 1992). Activities regarding groundwater remediation are currently awaiting OEPA approval.

Wastes Managed: This area was used to store drums of wastes containing spent perchloroethylene (F001) and lead materials (D008). The materials were stored in drums, placed on pallets, and stored on the asphalt surface. All drums were sent for disposal or recycling before the August 1988 cleanup of this area (Vernitron, 1988).

Release Controls: The area is lined with asphalt.

History of Release: During the closure cleanup in August 1988, portions of soil below the asphalt pavement were observed to be stained. Two verification samples were taken from areas where corroded asphalt had been removed. The samples were analyzed for volatiles, semivolatiles, and metals. The samples were found to contain elevated levels of metals and organics. Groundwater samples taken from monitoring wells installed in the upper aquifer also contained elevated levels of volatile organics. Lead was detected at concentrations below the Primary Drinking Water Standards of 0.05 mg/L (40 CFR 141.11). Moreover, asphalt left in place was found to contain elevated levels of metals and organics (Vernitron, 1988).

Observations: During the VSI, about 36 cubic yards of excavated material was covered with polyethylene liner. The liner appeared to be in good condition with no holes. According to Morgan Matroc's representative, Vernitron's contractor, Toxcon planned to ship this material to an off-site landfill. Because of the level of contamination identified, disposal of the soil has been delayed. The excavated material will be sent off site according to the approved closure plan.

SWMU 7 Dust Collectors

Unit Description: This unit consists of two dust collectors in the machining area of the facility. The dust collectors pick up the fines and empty them into 55-

gallon fiber drums. The location of the dust collectors is shown in Figure 2. Photograph 6 depicts the dust collectors.

Date of Startup: 1962

Date of Closure: The dust collectors are currently operational.

Wastes Managed: Dust fines (D008) from the machining and powder preparation area are collected by this unit. The dust is collected in 55-gallon fiber drums and shipped offsite. The dust goes directly into the drums to minimize exposure to the air.

Release controls: These units stand on a concrete floor in an enclosed building. Dust particles are collected directly in fiber drums.

History of release: No releases associated with this SWMU have been documented.

Observations: During the VSI, all equipment comprising this unit appeared to be in good condition. No releases were observed.

SWMU 8 Powder Preparation Area Sumps

Unit Description: This unit consists of five concrete sumps located in the powder preparation area of the facility. The location of this SWMU is shown in Figure 2. Photograph 7 depicts one of these sumps.

Date of Startup: 1962

Date of Closure: The sumps are currently operational.

Wastes Managed: Lead-containing wet dust particles (D008) in the powder preparation area are collected in these sumps. Prior to March 1991, dewatering was accomplished by collecting the waste in 55-gallon drums and letting the water evaporate. Since March 1991, all waste has been sent to a newly installed wastewater treatment unit. Dewatering takes place in a filter press. All water collected off the filter press is recycled through the wastewater treatment unit. Solids are sent to Shuykill Metals in Baton Rouge, Louisiana for lead reclamation.

Release Controls: The sumps are concrete and are enclosed within the powder preparation room.

History of Release: No releases have been documented from these sumps.

Observations: During the VSI, all the sumps appeared to be well maintained. No releases were observed from this SWMU.

SWMU 9**Machining Area Sumps**

Unit Description: This unit consists of two concrete sumps located in the machining area. The location of this SWMU is shown in Figure 2. Photograph 7 depicts one of these sumps.

Date of Startup: 1962

Date of Closure: The sumps are currently operational.

Wastes Managed: Lead-containing wet dust particles are collected in these sumps. This material is then dewatered and disposed of offsite. Prior to March 1991, dewatering was accomplished by collecting the waste in 55-gallon drums and letting the water evaporate. Since March 1991, all waste has been sent to a newly installed wastewater treatment unit. Dewatering takes place in a filter press. All water collected off the filter press is recycled through the wastewater treatment unit. Solids are sent to Shuykill Metals in Baton Rouge, Louisiana for lead reclamation.

Release Controls: The sumps are concrete and are enclosed within the machining room.

History of release: No releases have been documented from these sumps.

Observations: During the VSI, all the sumps appeared to be well maintained. No releases were observed from this SWMU.

SWMU 10**Spray Dryer Wet Scrubber**

Unit Description: The wet scrubber is located inside the building next to the spray dryer in the powder preparation area. The wet scrubber is equipped with a settling basin underneath it. The location of this unit is shown in Figure 2. Photograph 8 depicts this SWMU.

Date of Startup: 1962

Date of Closure: The wet scrubber is currently operational.

Wastes Managed: Lead-containing fine particles (D008) in the powder preparation area are received from the dust collectors and pass through the wet scrubber. Sludge is accumulated in the settling basins of the wet scrubber. Sludges are then dewatered and shipped to an off-site location. Prior to March 1991, dewatering was accomplished by collecting the waste in 55-gallon drums and letting the water evaporate. Since March 1991, all waste has been sent to a newly installed wastewater treatment unit. Dewatering takes place in a filter press. All water collected off the filter press is recycled through the wastewater treatment unit. Solids are sent to Shuykill Metals in Baton Rouge, Louisiana for lead reclamation.

Release Controls: The unit stands on a concrete floor and is enclosed in the powder preparation area.

History of Release: No releases associated with this unit have been documented.

Observations: During the VSI, the unit appeared to be in good condition. No releases were observed.

SWMU 11 Environmental Wet Scrubber

Unit Description: This unit is located in the powder preparation area. The wet scrubber is equipped with a settling basin beneath it. The location of this unit is shown in Figure 2. Photograph 9 depicts this SWMU.

Date of Startup: 1970

Date of Closure: This SWMU is currently operational.

Wastes Managed: Lead-containing dust particles (D008) are collected by the dust collectors and are then delivered via a pipe to this unit. Sludges are accumulated in the settling basin and then dewatered and disposed of at an off-site location. Prior to March 1991, dewatering was accomplished by collecting the waste in 55-gallon drums and letting the water evaporate. Since March 1991, all waste has been sent to a newly installed wastewater treatment unit. Dewatering takes place in a filter press. All water collected off the filter press is recycled through the wastewater treatment unit. Solids are sent to Shuylkill Metals in Baton Rouge, Louisiana for lead reclamation.

Release Controls: This unit stands on a concrete floor and is enclosed within the powder preparation room.

History of release: No releases associated with this unit have been documented.

Observations: During the VSI, the unit appeared to be operating normally. No releases were observed from this unit.

4.0 AREAS OF CONCERN

No AOCs were identified at the Morgan Matroc facility by PRC during the PA/VSI.

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ENFORCEMENT
CONFIDENTIAL**5.0 CONCLUSIONS AND RECOMMENDATIONS**

The PA/VSI identified 11 SWMUs at the Morgan Matroc facility. Background information on the facility's location, operations, waste generating processes, release history, regulatory history, environmental setting, and receptors is presented in Section 2.0. SWMU-specific information, such as the unit's description, dates of operation, wastes managed, release controls, release history, and observed condition, is discussed in Section 3.0. Following are PRC's conclusions and recommendations for each SWMU. Table 3 identifies the SWMUs at the Morgan Matroc facility and suggested further actions.

SWMU 1**Drum Storage Area 1-Dock Area (Inside Storage Area)****Conclusions:**

This unit is located in the warehouse adjacent to the powder preparation area. Drums are staged on the concrete floor and/or pallets. Confirmation samples taken from this area during the partial closure in August 1988 revealed no contamination. The unit poses low threat of current or future release. The potential for release via various environmental media is summarized below:

Ground Water: Low. This unit is located in the warehouse and has a concrete floor. Any spills would have been contained on the concrete floor. The potential for a contaminant release to ground water is low.

Surface Water: Low. The unit is contained in the warehouse. The distance to the surface-water intake also limits the release potential to this media.

Air: Low. The area where this unit is located is well ventilated. Air emissions are monitored daily. Waste is drummed in closed containers. The potential for contaminant release to air is low.

On-site Soils: Low. The unit is enclosed within the warehouse. The potential for contaminant release from this unit to on-site soils is low.

Recommendations:

PRC recommends plugging the two drains in the area that lead to the sanitary sewer system.

SWMU 2**Drum Storage Area 2****Conclusions:**

This unit is located at the southeast end of the building. It has a concrete floor. The drum storage area has absorbents for collecting any spills. The unit has a low potential for current or future release. The potential for release via various pathways is summarized below:

Ground Water: Low. This SWMU is located within the building and has a concrete floor. In addition, it has absorbents to contain any spills. The potential for a contaminant release to ground water is low.

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Table 3

SWMU Summary

	SWMU	Operational Dates	Evidence of Release	Suggested Further Action
1.	Drum Storage Area 1 - Dock Area	1970s - present	None	Seal all draws in the area.
2.	Drum Storage Area 2	1989 - present	None	No further action.
3.	Satellite Storage Area	1989 - present	None	No further action.
4.	Drum Storage Area 3	1989 - present	None	No further action.
5.	Drum Storage Area 4	1989 - Present	None	No further action.
6.	Outside Storage Area	1970s - 1988	Sampling in 1988, 1989	Close in accordance with approved closure plan; conduct soil and ground-water sampling to determine extent of contamination.
7.	Dust Collectors	1962 - present	None	No further action.
8.	Powder Preparation Area Sumps	1962 - present	None	No further action.
9.	Machining Area Sumps	1962 - present	None	No further action.
10.	Spray Dryer Wet Scrubber	1962 - present	None	No further action.
11.	Environmental Wet Scrubber	1970 - present	None	No further action.

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Surface Water: Low. The unit is contained inside a building. The distance to the surface-water intake also limits the potential for contaminant release to this media.

Air: Low. The building is well ventilated. Air emissions are monitored daily. The potential for contaminant release to air is low.

On-site Soils: Low. The unit is enclosed within the building. The potential for contaminant release from this unit to on-site soils is low.

Recommendations: No further action is recommended at this time.

SWMU 3

Satellite Storage Area

Conclusions: This unit is located in a hallway between the nickel-plating area and engineering science room. It is equipped with a secondary containment system that collects any spills from drums staged at this area. The unit poses low threat of current or future release. The potential for release via various pathways is summarized below:

Ground Water: Low. This unit is located within the building and has a concrete floor. It is also equipped with a secondary containment system. The potential for a contaminant release to ground water is low.

Surface Water: Low. The unit is located inside the building. The distance to the nearest surface-water intake limits the potential for release to surface water.

Air: Low. The area where this unit is located is well ventilated. Air monitoring is conducted on a daily basis. Wastes are drummed in closed containers. The potential for release of contaminants to air is low.

On-site Soils: Low. The unit is located inside the building, thereby minimizing the potential for release to on-site soils.

Recommendations: No further action is recommended at this time.

SWMU 4

Drum Storage Area 3

Conclusions: This SWMU is an inside drum storage area located in the southeast side of the building. Fiber drums containing wastes are stored on concrete flooring. The unit poses a low threat of current or future release. The potential for release via various pathways is summarized below:

Ground Water: Low. The unit is located inside the building. It also has a concrete floor. The potential for contaminant release to ground water is low.

Surface Water: Low. The SWMU is contained inside the building. The distance to the closest surface-water intake also minimizes the potential for release to surface water.

Air: Low. This area is monitored for air emissions on a daily basis. Wastes are drummed in closed containers. The potential for contaminant release to air is low.

On-site Soils: Low. The area is enclosed inside the building; therefore, the potential for contaminant release to on-site soils is low.

Recommendations: No further action is recommended at this time.

SWMU 5 Drum Storage Area 4

Conclusions: This unit is an inside drum storage area located in the southeast side of the building adjacent to SWMU 4 on a concrete floor. It poses a low potential of current or future release. The potential of release via various pathways is summarized below:

Ground Water: Low. This unit is enclosed within the building and is on a concrete floor. The potential for contaminant release to ground water is low.

Surface Water: Low. The unit is inside the building. The distance to the nearest surface-water intake also limits the potential for contaminants to migrate to surface water.

Air: Low. The area where this SWMU is located is monitored for air emissions on a daily basis. Wastes are drummed in closed containers. The potential for release to air is low.

On-Site Soils: Low. The area is enclosed inside the building, thereby minimizing the potential for release of contaminants to on-site soils.

Recommendations: No further action is recommended at this time.

SWMU 6 Outside Storage Area

Conclusions: This unit is located in the southwest corner of the asphalt paved area bounded by a chain-like fence. There has been a documented release of organics and metals to environmental media from this area. The potential of release via various pathways is summarized below:

Ground Water: Low to moderate. Volatile organics have been detected in ground-water samples taken from monitoring wells in the uppermost aquifer. The potential for these contaminants to migrate to the lower aquifer is low, because a 96-foot thick layer of shale separating the two aquifers acts as a confining unit.

Surface Water: Low to moderate. This unit is located outside of the building in a fenced parking lot. Tinker's Creek is about 3/4-mile north of the facility. Tinker's Creek flows to the Cuyahoga River, which in turn flows to Lake Erie. Lake Erie, about 15 miles north of this area, is a source of drinking water for the city of Bedford. The potential for contaminant migration is low-to-moderate due to the distance.

Air: Low. Drums containing hazardous materials were stored at this area. However, since the unit's closure in 1988, the potential to release to air has been reduced to low, because the primary sources of contamination have been excavated and removed.

On-site Soils: Low. Soil samples collected indicate the presence of lead and volatile organics in soil areas under and to the south and west of this area. Approximately 100 to 150 cubic yards of excavated soil is scheduled to be disposed of at an OEPA approved landfill by February 1992.

Recommendations: This area has not been brought to clean closure standards required by U.S. EPA or Ohio EPA. Vernitron is conducting further investigations to complete delineation of the extent of contamination. In addition, Vernitron is studying the feasibility of using an air stripper to remediate contaminated ground water and soil venting to remediate contaminated soil. PRC suggests that the unit should be closed in accordance with the approved closure plan. This includes collecting soil and ground-water samples to determine the extent of contamination in the area.

SWMU 7

Dust Collectors

Conclusions: This unit consists of two dust collectors in the machining area of the facility. The units are on a concrete floor. Dust is collected in 55-gallon fiber drums and disposed of at an off-site location. The unit poses low potential to release to environmental media. The potential to release via various pathways is summarized below:

Ground Water: Low. The unit is enclosed inside the building and also has a concrete lining. The potential for contaminant release to ground water is low.

Surface Water: Low. The unit is enclosed inside the building. The distance to the nearest surface water limits the potential for release.

Air: Low. The area where this unit is located is monitored for air emissions daily. Wastes are drummed in closed fiber drums. The potential for contaminant release to air is low.

On-site Soil: Low. The unit is located inside the building. The potential for contaminant release to on-site soils is low.

Recommendations: No further action is recommended at this time.

SWMU 8**Powder Preparation Area Sumps****Conclusions:**

This unit consists of five concrete sumps located in the powder preparation area. The unit poses a low threat to environmental media. The potential for release via various pathways is summarized below:

Ground Water: Low. The unit is enclosed in the building thereby minimizing the potential for contaminant release to ground water.

Surface Water: Low. The unit is enclosed in the building. The distance to the nearest surface-water intake also limits the potential for contaminant release to surface water.

Air: Low. The area is monitored for air emissions daily. The potential for contaminant release to air is low.

On-site Soils: Low. The unit is contained inside the building. Therefore, the potential for contaminant release to on-site soils is low.

Recommendations: No further action is recommended at this time.

SWMU 9**Machining Area Sumps****Conclusions:**

This unit consists of two concrete sumps located in the machining area. The area has a concrete floor. This SWMU poses low threat to environmental media. The potential for release via various pathways is summarized below:

Ground Water: Low. The unit is enclosed in the building thereby minimizing the potential for contaminant release to ground water.

Surface Water: Low. The unit is enclosed in the building. The distance to the nearest surface-water intake limits the potential for contaminant release to surface water.

Air: Low. The area is monitored for air emissions daily. The potential for contaminant release to air is low.

On-site Soils: Low. The unit is enclosed inside the building. The potential for contaminant release to on-site soils is low.

Recommendations: No further action is recommended at this time.

SWMU 10**Spray Dryer Wet Scrubber****Conclusions:**

This unit is located next to the spray dryer in the powder preparation area of the facility. It is equipped with a settling basin underneath it. The area has a concrete floor. This SWMU poses a low threat to environmental media. The potential for release via various pathways is summarized below:

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Ground Water: Low. The unit is enclosed in the building and has a concrete floor thereby minimizing the potential for contaminant release to ground water.

Surface Water: Low. The unit is enclosed in the building. The distance to the nearest surface-water intake also limits the potential for contaminant release to surface water.

Air: Low. The area is monitored for air emissions daily. The potential for contaminant release to air is low.

On-site Soils: Low. The unit is enclosed inside the building. The potential for contaminant release to on-site soils is low.

Recommendations: No further action is recommended at this time.

SWMU 11

Environmental Wet Scrubber

Conclusions:

This unit is located in the powder preparation area. It is equipped with a settling basin underneath it. The area has a concrete floor. This SWMU poses a low threat to environmental media. The potential for release via various pathways is summarized below:

Ground Water: Low. The unit is enclosed in the building and has a concrete floor thereby minimizing the potential for contaminant release to ground water.

Surface Water: Low. The unit is enclosed in the building. The distance to the nearest surface-water intake limits the potential for contaminant release to surface water.

Air: Low. The area is monitored for air emissions daily. The potential for contaminant release to air is low.

On-site Soils: Low. The unit is enclosed inside the building. The potential for contaminant release to on-site soils is low.

Recommendations: No further action is recommended at this time.

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ATTACHMENT A

EPA PRELIMINARY ASSESSMENT FORM 2070-12



POTENTIAL HAZARDOUS WASTE SITE
PRELIMINARY ASSESSMENT
PART 1 - SITE INFORMATION AND ASSESSMENT

I. IDENTIFICATION

01 STATE OH 02 SITE NUMBER OHD052324290

II. SITE NAME AND LOCATION

01 SITE NAME (Legal, common, or descriptive name of site)
Morgan Matroc, Inc.
(Formerly Vernitron Piezoelectric Division)

02 STREET, ROUTE NO. OR SPECIFIC LOCATION IDENTIFIER
232 Forbes Road

03 CITY
Bedford

04 STATE OH 05 ZIP CODE 44146 06 COUNTY 07 COUNTY CODE 035 08 CONG DIST

09 COORDINATES: LATITUDE 41°22'00" LONGITUDE 81°31'15"

10 DIRECTIONS TO SITE (Starting from nearest public road)

From Route 77 south take 480 east to Broadway. From Broadway make a right at Forbes Road. Building on the left.

III. RESPONSIBLE PARTIES

01 OWNER (if known)
Morgan Crucible Company

02 STREET (Business, mailing residential)
Chariott House, 6-12 Victoria Street

03 CITY
Windsor, Berkshire, England

04 STATE 05 ZIP CODE 06 TELEPHONE NUMBER

07 OPERATOR (if known and different from owner)

08 STREET (Business, mailing, residential)

09 CITY

10 STATE 11 ZIP CODE 12 TELEPHONE NUMBER

13 TYPE OF OWNERSHIP (Check one)

- ☒ A. PRIVATE ☐ B. FEDERAL: (Agency Name) ☐ C. STATE ☐ D. COUNTY ☐ E. MUNICIPAL
☐ F. OTHER (Specify) ☐ G. UNKNOWN

14. OWNER/OPERATOR NOTIFICATION ON FILE (Check all that apply)

- ☐ A. RCRA 3010 DATE RECEIVED: / / MONTH DAY YEAR ☐ B. UNCONTROLLED WASTE SITE (CERCLA 103 c) DATE RECEIVED: / / MONTH DAY YEAR ☐ C. NONE

IV. CHARACTERIZATION OF POTENTIAL HAZARD

01 ON SITE INSPECTION

BY (Check all that apply)

- ☒ A. EPA ☒ B. EPA CONTRACTOR ☐ C. STATE ☐ D. OTHER CONTRACTOR
☒ YES DATE 06/29/91 ☐ E. LOCAL HEALTH OFFICIAL ☐ F. OTHER: (Specify)
☐ NO

CONTRACTOR NAME(S): PRC Environmental Management, Inc.

02 SITE STATUS (Check one)

- ☒ A. ACTIVE ☐ B. INACTIVE ☐ C. UNKNOWN

03 YEARS OF OPERATION

1938 Present UNKNOWN
BEGINNING YEAR ENDING YEAR

04 DESCRIPTION OF SUBSTANCES POSSIBLY PRESENT, KNOWN, OR ALLEGED

Elevated concentrations of volatile organics and lead have been detected in soils, ground water, and asphalt excavations at the outside storage area (SWMU 6).

05 DESCRIPTION OF POTENTIAL HAZARD TO ENVIRONMENT AND/OR POPULATION

Ground-water samples taken from the upper aquifer contained elevated amount of volatile organics. The potential for contamination migration to the lower aquifer exists. Ground water is used as a drinking source in the area with 2 water wells within 1/20 mile of the facility.

V. PRIORITY ASSESSMENT

01 PRIORITY FOR INSPECTION (Check one. If high or medium is checked, complete Part 2 - Waste Information and Part 3 - Description of Hazardous Conditions and Incidents.)

- ☐ A. HIGH (Inspection required promptly) ☐ B. MEDIUM (Inspection required) ☐ C. LOW (Inspect on time-available basis) ☐ D. NONE (No further action needed; complete current disposition form)

VI. INFORMATION AVAILABLE FROM

01 CONTACT
Kevin Pierard

02 OF (Agency/Organization)
U.S. EPA

03 TELEPHONE NUMBER
(312) 886-4448

04 PERSON RESPONSIBLE FOR ASSESSMENT
Steve Tsadwa

05 AGENCY

06 ORGANIZATION
PRC-EMI

07 TELEPHONE NUMBER
(703) 883-8881

08 DATE
06/ 26/ 91
MONTH DAY YEAR



POTENTIAL HAZARDOUS WASTE SITE
PRELIMINARY ASSESSMENT
PART 2 - WASTE INFORMATION

I. IDENTIFICATION

01 STATE
OH

02 SITE NUMBER
OHD052324290

II. WASTE STATES, QUANTITIES, AND CHARACTERISTICS

01 PHYSICAL STATES (Check all that apply)

- ☒ A. SOLID ☐ E. SLURRY
☐ B. POWDER, FINES ☐ F. LIQUID
☐ C. SLUDGE ☐ G. GAS
☐ D. OTHER _____
(Specify)

02 WASTE QUANTITY AT SITE
(Measures of waste quantities
must be independent)

TON _____ 0
CUBIC YARDS _____ 0
NO. OF DRUMS _____ 12

03 WASTE CHARACTERISTICS (Check all that apply)

- ☐ A. TOXIC ☒ H. IGNITABLE
☒ B. CORROSIVE ☒ I. HIGHLY VOLATILE
☐ C. RADIOACTIVE ☐ J. EXPLOSIVE
☐ D. PERSISTENT ☐ K. REACTIVE
☐ E. SOLUBLE ☐ L. INCOMPATIBLE
☐ F. INFECTIOUS ☐ M. NOT APPLICABLE
☐ G. INFLAMMABLE

III. WASTE TYPE

CATEGORY	SUBSTANCE NAME	01 GROSS AMOUNT	02 UNIT OF MEASURE	03 COMMENTS
SLU	SLUDGE			
OLW	OILY WASTE			
SOL	SOLVENTS	3		Perchloroethylene, ethanol, toluene
PSD	PESTICIDES			
OCC	OTHER ORGANIC CHEMICALS	3	55-gal Drums	Perchloroethylene, ethanol, toluene
IOC	INORGANIC CHEMICALS	9	55-gal Drums	Silver, chromic acid, nickel, lead
ACD	ACIDS	1/2	55-gal Drums	Chromic acid
BAS	BASES			
MES	HEAVY METALS			

IV. HAZARDOUS SUBSTANCES (See Appendix for most frequently cited CAS Numbers)

CATEGORY	02 SUBSTANCE NAME	03 CAS NUMBER	04 STORAGE/DISPOSAL METHOD	05 CONCENTRATION	06 MEASURE OF CONCENTRATION
D011	Silver wipes	7440-22-4	Drum Storage Area		
F001	Perchloroethylene	127-18-4	Drum Storage Area		
D001	Ethanol	64-17-5	Drum Storage Area		
F006	Spent nickel	7440-02-0	Drum Storage Area		
F001	Freon	—	Drum Storage Area		
F005	Toluene	108-88-3	Drum Storage Area		
D002/D007	Spent chromic acid	7738-94-5	Drum Storage Area		
D001	Waste oil	—	Drum Storage Area		
D008	Ceramic waste	7439-92-1	Drum Storage Area		

V. FEEDSTOCKS (See Appendix for CAS Numbers)

CATEGORY	01 FEEDSTOCK NAME	02 CAS NUMBER	CATEGORY	01 FEEDSTOCK NAME	02 CAS NUMBER
FDS			FDS		
FDS			FDS		
FDS			FDS		
FDS			FDS		

VI. SOURCES OF INFORMATION (Cite specific references; e.g., state files, sample analysis, reports)

EPA Region 5 RCRA files; Ohio EPA Northeast District Office files.



POTENTIAL HAZARDOUS WASTE SITE
PRELIMINARY ASSESSMENT
PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION

01 STATE
OH

02 SITE NUMBER
OHD052324290

II. HAZARDOUS CONDITIONS AND INCIDENTS

01 ☒ A. GROUNDWATER CONTAMINATION 02 ☒ OBSERVED (DATE: 08/88) ☐ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: 7,000 04 NARRATIVE DESCRIPTION

Groundwater samples taken beneath the outside storage area (SWMU 6) contained elevated concentrations of volatile organics. Lead was also detected at concentrations below the Primary Drinking Water Standards of 0.05 mg/l.

01 ☐ B. SURFACE WATER CONTAMINATION 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: 0 04 NARRATIVE DESCRIPTION

Lake Erie, the surface water intake, is about 15 miles north of the facility. The potential of contaminant migration is low.

01 ☒ C. CONTAMINATION OF AIR 02 ☒ OBSERVED (DATE: 08/90) ☐ POTENTIAL ☒ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: 80 04 NARRATIVE DESCRIPTION

Employees complained of exposure to PVA decomposition products, silver fumes, and lead in August 1990.

01 ☐ D. FIRE/EXPLOSIVE CONDITIONS 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: 0 04 NARRATIVE DESCRIPTION

Fire/explosive conditions are minimal.

01 ☒ E. DIRECT CONTACT 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: 80 04 NARRATIVE DESCRIPTION

The potential for employees to be exposed to contaminants in the manufacturing area exists. But this conditions is unlikely since there is continuous monitoring as required by OSHA.

01 ☒ F. CONTAMINATION OF SOIL 02 ☒ OBSERVED (DATE: 08/88) ☐ POTENTIAL ☐ ALLEGED
03 AREA POTENTIALLY AFFECTED: <1 04 NARRATIVE DESCRIPTION
(Acres)

An area covering 50 square feet around and beneath the outside storage area (SWMU 6) was found contaminated with organics and lead.

01 ☒ G. DRINKING WATER CONTAMINATION 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ 04 NARRATIVE DESCRIPTION

Ground-water samples collected from the upper aquifer were found contaminated with organics and low lead concentrations. The potential for the contaminants to migrate to the lower drinking-water aquifer is significant. Oakwood community water supply is 1/4-mile from the facility.

01 ☒ H. WORKER EXPOSURE/INJURY 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: 80 04 NARRATIVE DESCRIPTION

The potential for workers' exposure to organics and lead exists. However, it is low due to constant air monitoring in the working area.

01 ☐ I. POPULATION EXPOSURE/INJURY 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: 0 04 NARRATIVE DESCRIPTION

There are several homes within 1/4-mile of the facility. However, the potential for exposure is low because contaminant migration pathways are limited and access to the facility is restricted.



POTENTIAL HAZARDOUS WASTE SITE
PRELIMINARY ASSESSMENT
PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION

01 STATE
OH

02 SITE NUMBER
OHD052324290

II. HAZARDOUS CONDITIONS AND INCIDENTS (Continued)

01 ☐ J. DAMAGE TO FLORA
04 NARRATIVE DESCRIPTION

02 ☐ OBSERVED (DATE: _____)

☐ POTENTIAL

☐ ALLEGED

No evidence was observed during the VSI.

01 ☐ K. DAMAGE TO FAUNA
04 NARRATIVE DESCRIPTION

02 ☐ OBSERVED (DATE: _____)

☐ POTENTIAL

☐ ALLEGED

No evidence was observed during the VSI.

01 ☐ L. CONTAMINATION OF FOOD CHAIN
04 NARRATIVE DESCRIPTION

02 ☐ OBSERVED (DATE: _____)

☐ POTENTIAL

☐ ALLEGED

No evidence was observed during the VSI.

01 ☐ M. UNSTABLE CONTAINMENT OF WASTES
03 POPULATION POTENTIALLY AFFECTED: _____

02 ☐ OBSERVED (DATE: _____)

☐ POTENTIAL

☐ ALLEGED

04 NARRATIVE DESCRIPTION

No evidence was observed during the VSI.

01 ☐ N. DAMAGE TO OFF-SITE PROPERTY
04 NARRATIVE DESCRIPTION

02 ☐ OBSERVED (DATE: _____)

☐ POTENTIAL

☐ ALLEGED

No evidence has been documented or observed.

01 ☐ O. CONTAMINATION OF SEWERS, DRAINS, WWTPS
04 NARRATIVE DESCRIPTION

02 ☐ OBSERVED (DATE: _____)

☐ POTENTIAL

☐ ALLEGED

No evidence was observed during the VSI.

01 ☐ P. ILLEGAL/UNAUTHORIZED DUMPING
04 NARRATIVE DESCRIPTION

02 ☐ OBSERVED (DATE: _____)

☐ POTENTIAL

☐ ALLEGED

None.

05 DESCRIPTION OF ANY OTHER KNOWN, POTENTIAL, OR ALLEGED HAZARDS

None.

III. TOTAL POPULATION POTENTIALLY AFFECTED: _____

IV. COMMENTS

V. SOURCES OF INFORMATION (Cite specific references; e.g., state files, sample analysis, reports)

Preliminary Assessment/Visual Site Inspection, June 26, 1991. Ohio State Department of Natural Resources.

ATTACHMENT B

VISUAL SITE INSPECTION SUMMARY AND PHOTOGRAPHS

VISUAL SITE INSPECTION SUMMARY

Morgan Matroc, Inc.
(Formerly Vernitron Piezoelectric Division)
Bedford, Ohio
OHD 052 324 290

Date: June 26, 1991

Facility Representatives: Kenneth S. Kupcak (Purchasing Manager, Morgan Matroc, Inc.)
Ronald J. Roch (President, Morgan Matroc, Inc.)
Cas Stevens (former employee, now consultant)
(216) 232-8600

Inspection Team: Steve Tsadwa, PRC Environmental Management, Inc.
H. Wing Tse, PRC Environmental Management, Inc.

Photographer: H. Wing Tse

Weather Conditions: Sunny, temperature in the 50s (°F)

Summary of Activities: The visual site inspection (VSI) began at 8:45 a.m. when PRC's inspection team arrived at the facility. The inspection team was introduced to Kenneth Kupcak and Cas Stevens (a former employee and now a part-time consultant to Morgan Matroc) by the company's president, Ronald Roch. Cas Stevens and Kenneth Kupcak gave a brief introduction of the company's past and present operations. Steve Tsadwa presented the purpose of the site visit.

The site tour commenced at 10:15 a.m. Photographs were taken of the facility's solid waste management units (SWMUs). The tour was completed at 11:40 a.m. Following the tour, the PRC inspection team requested copies of several documents. Ken Kupcak promised to send the required documents on a later date.

PRC's inspection team reviewed the purpose of the VSI during the exit interview. The team left the site at 12:20 p.m.



Photograph No. 1

Orientation: Northwest

Description: Part of drum storage area 1 (inside storage area) is shown. Thirty-gallon drums containing nonhazardous waste are stored on wooden pallets.

Location: SWMU 1

Date: 06/26/91



Photograph No. 2

Orientation: North

Description: Part of drum storage area 1 (inside storage area) is shown. Drums containing perchloroethylene and ethanol are stored on the concrete floor.

Location: SWMU 1

Date: 06/26/91



Photograph No. 3

Orientation:

South to north

Description:

Fifty-five gallon drums containing nickel-plating solution are stored on wooden pallets. The pallets are surrounded by absorbents for spill control.

Location: SWMU 2

Date: 06/26/91



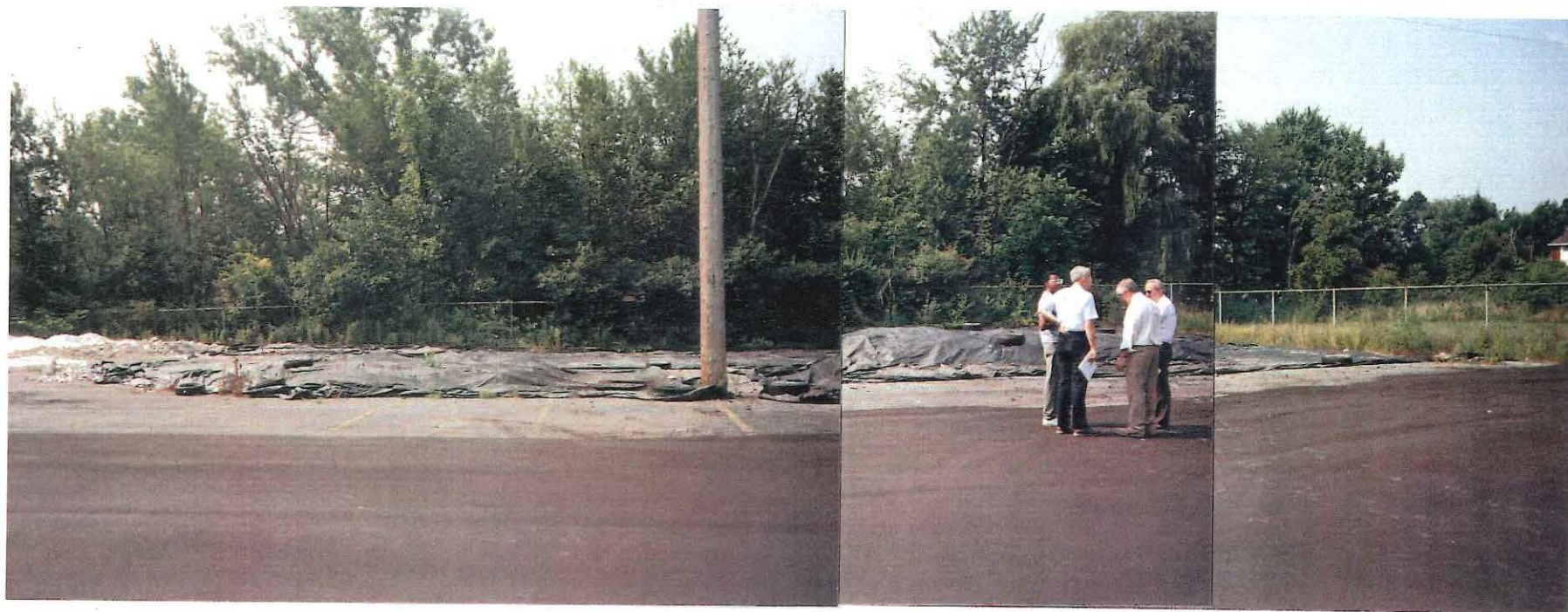
Photograph No. 4

Orientation: Northwest

Description: Satellite storage area 3 is used to temporarily store spent electroless nickel-plating solution, chromic acid solution, and brass cleaning solution. Note the two drums are stored over the secondary containment system. The third drum on the right is empty

Location: SWMU 3

Date: 06/26/91



Photograph No. 5

Orientation: East to West

Description: A panoramic view of the outside storage area that is located in the southwest corner of the paved asphalt area is shown. Asphalt removed during the partial closure is covered with polyethylene liner.

Location: SWMU 6

Date: 06/26/91



Photograph No. 6

Orientation: Northwest

Location: SWMU 7

Date: 06/26/91

Description: Dust collectors located in the machining area are shown. They are equipped with 55-gallon fiber drums that receive dust.



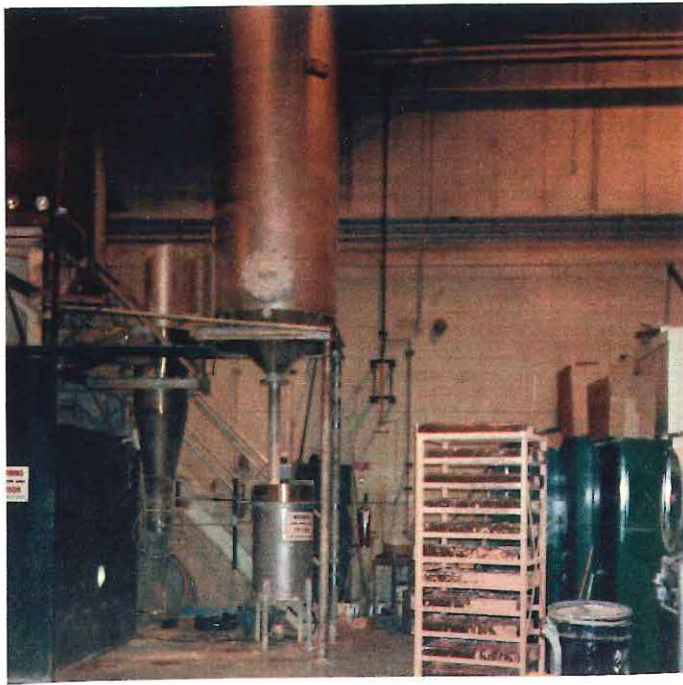
Photograph No. 7

Orientation: West

Location: SWMU 8

Date: 06/26/91

Description: Sump in the powder preparation area is shown. There are five such sumps in this area.



Photograph No. 8

Orientation:

North

Description:

The spray dryer wet scrubber that is located in the powder preparation area is shown. It is equipped with a settling basin (underneath) to store sludge.

Location: SWMU 10

Date: 06/26/91



Photograph No. 9

Orientation:

Northwest

Description:

The environmental wet scrubber located in the powder preparation area is shown. It is equipped with a settling basin (underneath) to store sludge.

Location: SWMU 11

Date: 06/26/91

ATTACHMENT C

VISUAL SITE INSPECTION FIELD NOTES

Date: June 26, 1991

VSI Corp
(Formerly Vernitron Piezoelectric Division)

Weather: Sunny, in the P.S.(F)
The visual site inspection began at about 9:45 a.m. when PEC inspection team arrived at the facility. The team met Ron Rock, Company president, who introduced them to Cas Stevens (former employee but now acts as their consultant) and Kenneth Kupcak. Cas and Ken gave a brief introduction on the background of the Company's past and present operations and waste management practices. The company manufactures

ceramics with piezoelectric property for transducers that convert one form of energy into another. The main customer is the ultrasonic industry. Some are used for sensors. Raw materials used are oxides of lead, zirconium, and titanium dioxide. To these small amount of modifiers are added. This mixture then goes to a plunger where water is added. The cake that results then goes to a Rotary Calciner where a P.T. is formed. Dust formed in the Calciner is collected in sumps in the powder preparation area and machining area. Wet powder sludge in sumps

ST

3

is treated by removing water by evaporation. PZT is ground in water to reduce size. This material goes to a mixer. TD this mixture a binder, polyvinyl alcohol (PVA) is added. The mixture then goes through a hot air blowing to remove water. The final PZT product is proof-tested to look for shrinkage and piezoelectric characteristics. Custom designed products PZT 4 or PZT 8 may be built. The PZT at this stage could be prepared in a powdered form or into sheets. The product then goes to a three stage firing. The first stage takes the PVA binder off completely burning it with excess

6/26

2

oxygen. After 3-stage firing silver electrode are installed on the Ceramics. Putting electrode creates a D.C field. The product is tested and cleaned and shipped to customers. The facility was once categorized as a TSDF because it treated wet sludge by removing water from it in drums (part of the process). Polishing involves put the ceramic product into hot mineral oil. They use perchloroethylene to remove mineral oil. The facility shipped shipped a drums of perchloroethylene, 1 drum of freon/methylene chloride, and 1 drum of ethanol to

57

5

Liberty Solvents, Twinsburg, Ohio for recycling. There wastes were stored onsite for less than 90 days. The facility was owned by Brush Trust. Corp in 1938. In early 1980s Chivite owned the facility. In 1968 Gould owned the company. In 1970 property sold to Varnition and 1989 it was sold to Morgan, Cincinnati. But the process remained the same since 1938. The facility now generates non-regulated wet, dry and powdered sludges containing lead. This material is stored in fiber drums and sent to smelters to recover lead. This material is generated mainly from the

4/26

6

machinery area. About 23,000 lb of waste is generated per quarter. Materials containing silver are shipped to Maternil process, St Paul Minnesota, for silver reclaim. The last shipment was on October 1990. About 10,206 ceramic waste was shipped. The facility uses Freon and ethanol for cleaning purposes. There are 2 dust collectors. The fines go to either to spray dryer wet scrubber or Enson mental wet scrubber. The facility has air permit from the city of Cleveland. As required by OSHA the facility monitors lead and VOCs in the

process over. Regular air monitoring is done by Enviro-scope Environmental, Inc., Pickfield, Ohio. This air monitoring started in March 1990. In August 1990, employees at Morgan Bratruc complained of a smell within the building. Doctors came to this facility 2 times a week for physical examination of a lead related illness. The facility has an area of 6 acres. The facility has 2 unpermitted discharges. It will change to one permit. At 10:15 site tour started. The Dust collectors (two) have been in operation since 1962. They are located in the powder

preparation area. Also located in that area is the Spray Drier wet scrubber and Environmental wet scrubber. There are 5 pumps (grinder type) in the grinder preparation area and 2 such pumps in the machining area. The Environmental wet scrubber started with DSHA. It treats fines from dust collectors. The inside storage area is located in the warehouse adjacent to the powder preparation area. Observed 30 gal drums used for drum crushing. Also observed drums containing, perchloroethylene and ethanol. Outside storage are contained et covered pile covered with TPA (TTP)

(13) mil polystyrene surf.
glass fiber. There was about 76
cubic yards. This has been
operating since 1970s.

In the Machining Area a tank
is generated. Water is removed
and goes with other solids for
lead reclaiming.

Mineral oil used in the polarizing
process is ~~removed~~ ^{removed} using per-
chloroethylene. In the satellite
Storage area there are nickel
plating solution, chromic acid
or Isoprep 201 solution, and
little amount of brass cleaning
solution stored on a secondary
container. It is located in the
Center Hall within the building.

In the northeast side of the
bldg. It has been operating
since 1985. This area consists
of Drum Storage area 4 and Drum
Storage area 5. Dry soap solid
powder is stored in this area
and shipped for lead reclaim
to ~~Kaiser~~ Louisiana. Ceramic nickel
and citrous wipers are also
stored in this area before
shipment to a Materials
Process, St Paul, Minnesota
for silver reclaim.
Drum Storage area # 2 -
Nickel plating solutions are
deposited here in 55-gallon drums.
This waste is sent for
incineration due to lead nickel
concentrations. There are nine

55-gallon drums stacked on pallets. The pallets are surrounded by clay material obviously for spill control. Chronic acid solution is also stored at this area. At 11:40 the info tour was terminated. At the office Ken indicated that Totcon, representative of Varnition, plans to ship excavated material within 2 weeks. Ken also mentioned that Lake Erie (Baldwin Reservoir) is about 15 miles north from the site. Nickel-plating tanks go Chen wet and chronic acid waste goes to Frontier. At 12:20 Ken team left site.

6-26-71

Steve Bedwa (ST)

Morgan Matroc, Inc. (Former Vernitron Piezoelectronic Division)	06/26/91	HUT	06/26/91
7:05 sunny	arrived at the facility at 8:45 am	met Ron Rock at his office, later joined by Ken and Gas Stevens.	raw materials - raw oxides, including lead, zirconium oxide and titanium dioxide.
Workers complaint about the smell in August 1989	Tests performed by OSHA, just finished a week ago	OSHA took about 50 samples	Add modifiers in small percentage to modify the structure of the ceramic.
Vernitron Piezoelectronic Division purchased by Morgan Matroc, Inc. in July 1989.	Continued the meeting with Ken and Gas in Ken's office.	The facility supplies ceramic, a composed manufacturer products go to the ultra sonic cleaning industries, sensor industries.	make the solid solution process the material by blending with water then dry and form a cake which is fed into a rotary kiln and form PZT.
			ground into pepper mill into water have particle-size controlled. Mixer with binder polyvinyl alcohol. Remove H ₂ O by spray dry.
			material proof-tested. Materials bonded and made to customised products.
			Hydraulic presses and fired first firing to take the binder out and together with polyvinyl alcohol second firing in electron kiln (1250-1300C)
			Machining in the electrodes are silver. Fuse in the silver into PZT ceramic.

HWT

06/26/91

Polarizing - Du. Fuse, detort ceramic into semi-conductor, inspected and shipped to customers.

TSD because dry the waste before the wastes are taken to the smelter.

Started the closure in 1986

Tox - (on put into an amendment of the closure plan in Nov 1990 and waiting for the approval

A drum with tetrachloroethene was found leaking in the parking lot. TCE was used vapor degreasing. Use mineral oil in the polarization process, need TCE to degrease

Vanition bought the property from Gould in 1962 and started the ceramic business. Prior to the ceramic business from 1939 - crystal operation

Sludges in fiber drums for reclamation,

HWT

06/26/91

25,000 lbs of fiber sludges / 3 drums

send 14,200 lbs in 6 weeks of electrodes in drums for silver and lead reclamation to

Aluminum processing in St. Paul, Minnesota.

"HWT"
(10 drums in 3 months, including one drum

of Proton and 3 drum ethyl methanol (Both Proton and ethyl methanol are for product cleaning) send perchloroethylene for recycling to

Liberty Solvere

no list.

Exhaust from dust collector goes to scrubbers.

2 wet scrubbers - one for environmental control.

Sludges from the scrubbers go with the lead

sludges. Scrubbers permitted with city of

Cleveland.

There is air monitoring for lead and organic in the facility.

3 GED monitoring wells. The plant is

approx. 6 acres.

58 hourly workers for manufacturing

HWT	06/26/91	HWT	06/26/91
22 employees for sales, accounting and engineering	and	area. 5	sumps in the
The plant operates 24 hours/day. 5 days per week. A security system and a card exit and entry system	5 days	machinery	area, 2 sumps in the
2 discharge points (no permit) to Bedford treatment plant, plan to change it to one to NE Ohio Sewerage Dept.	and a card	sump to over	we pumped from the
Gas Stevens, a retired employee retired in 1984, worked as a consultant.	exit and entry system	sludge to the	to remove H ₂ S and
The plant intends to put a wastewater treatment unit, expected to start operation by end of September.	2 discharge points	drums.	Photo 4. N scrubber vent to the spray
Picture 1: NW dust collectors in the machinery area.	treatment plant, plan to change it to one	Photo 5. N scrubber vent to the spray	diger in the powder preparation area
Picture 2: NW drums of wastes from the dust collectors in the machinery area.	to NE Ohio Sewerage Dept.	sludge from the burner goes to the digester.	Photo 6 & 7. NW scrubber for environmental
Photo 3: NW sump in the powder preparation	Gas Stevens, a retired employee retired in 1984, worked as a consultant.	Photo 8. NW warehouse, mud storage area	control in the powder preparation area.
	The plant intends to put a wastewater treatment unit, expected to start operation by end of September.	non-hazardous waste storage area (130-gallon drums, 2 55-gallon drums)	Photo 9. N warehouse, inside storage area, (well)
	Picture 1: NW dust collectors in the machinery area.	Photo 10. N warehouse, inside storage area, next to the hazardous waste storage area	Photo 11. N warehouse, inside storage area, next to the hazardous waste storage area on concrete floor, no secondary containment. One drum of perchloroethylene, one drum of light alcohol

HUNT

Photos 10, 11 & 12. From E to W. The area in the parking lot where drum of perchloroethylene was found leaking.

Photo 13 NW: Satellite hazardous waste storage area for electrolytic nickel plating solution (in center hall nickel plating area). The area is approx. 4' x 5' x 8".

Fill up one drum per week. No sign of hazardous waste sign in the area. 1 drum of chrome in the area.

Photos 14, 15 & 16 from N to S. Storage area behind

the engineering department, SE end of the building.

Photos 17, 18 & 19. From S to N, SE corner of the building. 9 drums of nickel plating solutions on pallets surrounded by clay materials absorbents on concrete floor.

end of notes HUNT

06/26/91



RECEIVED
WMD RCRA
RECORD CENTER
APR 08 1993
@mp.

**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
230 SOUTH DEARBORN ST.
CHICAGO, ILLINOIS 60604**

REPLY TO ATTENTION OF:

5HR-12

June 7, 1991

Mr. Ron Roch
Vernitron Piezoelectric Division
232 Forbes Road
Bedford, OH 44146

Re: Visual Site Inspection
Vernitron Piezoelectric
Division
OHD 052324290 *X*

Dear Mr. Roch:

The United States Environmental Protection Agency (U.S. EPA) Region V will conduct a Preliminary Assessment and Visual Site Inspection (PA/VSI) at the referenced facility. This inspection is conducted pursuant to the Resource Conservation and Recovery Act, as amended (RCRA) and the Comprehensive Environmental Response, Compensation, and Liability Act, as amended (CERCLA). The PA/VSI requires identification and systematic review of all solid waste streams at the facility. The objective of the PA/VSI is to determine whether or not releases of hazardous wastes or hazardous constituents have occurred or are occurring at the facility which may require further investigation. This analysis will also provide information to establish priorities for addressing any confirmed releases.

The visual site inspection of your facility is to verify the location of all solid waste management units (SWMUs) and areas of concern to make a cursory determination of their condition by visual observation. The VSI supplements and updates data gathered during a preliminary file review. During this site inspection, no samples will be taken. A sampling visit to ascertain if releases of hazardous waste or constituents have occurred may be required at a later date.

Assistance of some of your personnel may be required in reviewing solid waste flow(s) or previous disposal practices. The site inspection is to provide a technical understanding of the present and past waste flows and handling, treatment, storage, and disposal practices. Photographs of the facility are necessary to document the condition of the units at the facility and the waste management practices used.

The VSI will be scheduled upon your receipt of this letter. The inspection team will consist of H. Wing Tse and another employee of PRC Environmental Management, Inc., contractors for the U.S. EPA. Representatives of the Ohio Environmental Protection Agency may also be present. Your cooperation in admitting and assisting them while on site is appreciated.

The U.S. EPA recommends that personnel who are familiar with present and past manufacturing and waste management activities be available during the VSI. Access to any relevant maps, diagrams, hydrogeologic reports, environmental assessment reports, sampling data sheets,

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If you have any questions, please contact me at (312) 886-4448 or Sheri Bianchin at (312) 886-4446. A copy of the Preliminary Assessment/Visual Site Inspection Report, excluding the conclusions portion may be made available upon request.

Sincerely yours,

Sheri L. Bianchin
for Kevin M. Pierard, Chief
OH/MN Technical Enforcement Section

cc: Dave Wertz, Ohio EPA - Northeast District
David Sholtis, Ohio EPA - Columbus
Edward Kitchen, Ohio EPA - Columbus



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
230 SOUTH DEARBORN ST.
CHICAGO, ILLINOIS 60604

RECEIVED
MAIL RECORD CENTER

SEP 11 1995

REPLY TO ATTENTION OF:

5HR-12

June 7, 1991

Mr. Ron Roch
Vernitron Piezoelectric Division
232 Forbes Road
Bedford, OH 44146

Re: Visual Site Inspection
Vernitron Piezoelectric
Division
OHD 052324290

Dear Mr. Roch:

The United States Environmental Protection Agency (U.S. EPA) Region V will conduct a Preliminary Assessment and Visual Site Inspection (PA/VSI) at the referenced facility. This inspection is conducted pursuant to the Resource Conservation and Recovery Act, as amended (RCRA) and the Comprehensive Environmental Response, Compensation, and Liability Act, as amended (CERCLA). The PA/VSI requires identification and systematic review of all solid waste streams at the facility. The objective of the PA/VSI is to determine whether or not releases of hazardous wastes or hazardous constituents have occurred or are occurring at the facility which may require further investigation. This analysis will also provide information to establish priorities for addressing any confirmed releases.

The visual site inspection of your facility is to verify the location of all solid waste management units (SWMUs) and areas of concern to make a cursory determination of their condition by visual observation. The VSI supplements and updates data gathered during a preliminary file review. During this site inspection, no samples will be taken. A sampling visit to ascertain if releases of hazardous waste or constituents have occurred may be required at a later date.

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REGION 5
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CHICAGO, ILLINOIS 60604

RECEIVED
WMD RECORDS CENTER

SEP 11 1995

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cc: Dave Wertz, Ohio EPA - Northeast District
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Edward Kitchen, Ohio EPA - Columbus

CERTIFICATION REGARDING POTENTIAL RELEASES FROM
SOLID WASTE MANAGEMENT UNITS

FACILITY NAME: Vernitron Corporation Piezoelectric Division
 EPA I.D. NUMBER: OHD052324290
 LOCATION CITY: Bedford, Ohio
 STATE: Ohio

1. Are there any of the following solid waste management units (existing or closed) at your facility? NOTE - DO NOT INCLUDE HAZARDOUS WASTE UNITS CURRENTLY SHOWN IN YOUR PART A APPLICATION

	<u>YES</u>	<u>NO</u>
• Landfill	<u> </u>	<u>X</u>
• Surface Impoundment	<u> </u>	<u>X</u>
• Land Farm	<u> </u>	<u>X</u>
• Waste Pile	<u> </u>	<u>X</u>
• Incinerator	<u> </u>	<u>X</u>
• Storage Tank (Above Ground)	<u> </u>	<u>X</u>
• Storage Tank (Underground)	<u> </u>	<u> </u>
• Container Storage Area	<u>X</u>	<u> </u>
• Injection Wells	<u> </u>	<u>X</u>
• Wastewater Treatment Units	<u> </u>	<u>X</u>
• Transfer Stations	<u> </u>	<u>X</u>
• Waste Recycling Operations	<u>X</u>	<u> </u>
• Waste Treatment, Detoxification	<u> </u>	<u> </u>
• Other <u> </u>	<u> </u>	<u>X</u>

2. If there are "Yes" answers to any of the items in Number 1 above, please provide a description of the wastes that were stored, treated or disposed of in each unit. In particular, please focus on whether or not the wastes would be considered as hazardous wastes or hazardous constituents under RCRA. Also include any available data on quantities or volume of wastes disposed of and the dates of disposal. Please also provide a description of each unit and include capacity, dimensions and location at facility. Provide a site plan if available.

STORED	DISPOSITION	HAZARDOUS	AMOUNT	FREQ.
Perchloroethylene, toluene & freon	Recycled	Yes	10 x 55 gal drums	90-120 days
Lead oxide in ceramics	Sold for lead salvage	Yes		
Silver on ceramic/ silver on wipes, etc.	Sent to precious metal refiner	Yes	8M-10M lbs.	4 - 6 mo.

NOTE: Hazardous wastes are those identified in 40 CFR 261. Hazardous constituents are those listed in Appendix VIII of 40 CFR Part 261.

3. For the units noted in Number 1 above and also those hazardous waste units in your Part A application, please describe for each unit any data available on any prior or current releases of hazardous wastes or constituents to the environment that may have occurred in the past or may still be occurring.

Please provide the following information

- a. Date of release
- b. Type of waste released
- c. Quantity or volume of waste released
- d. Describe nature of release (i.e., spill, overflow, ruptured pipe or tank, etc.)

NONE


4. In regard to the prior or continuing releases described in Number 3 above, please provide (for each unit) any analytical data that may be available which would describe the nature and extent of environmental contamination that exists as a result of such releases. Please focus on concentrations of hazardous wastes or constituents present in contaminated soil or groundwater.

N/A

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the submittal is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations. (42 U.S.C. 6902 et seq. and 40 CFR 270.11(d))

Kenneth S. Kupcak, Purch. Mgr.

Typed Name and Title


Signature

3/12/86

Date